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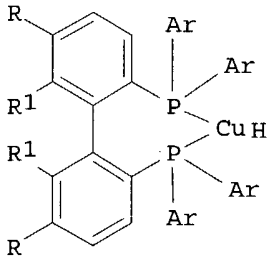
FILE LAST UPDATED: 30 Jan 2003 (20030130/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l4
L5 10 L4

=> d ibib abs hitstr 1-10

L5 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:803368 CAPLUS
DOCUMENT NUMBER: 138:24764
TITLE: Copper(I) Hydride-Catalyzed Asymmetric Hydrosilylation of Heteroaromatic Ketones
AUTHOR(S): Lipshutz, Bruce H.; Lower, Asher; Noson, Kevin
CORPORATE SOURCE: Department of Chemistry and Biochemistry, University of California-Santa Barbara, Santa Barbara, CA, 93106, USA
SOURCE: Organic Letters (2002), 4(23), 4045-4048
CODEN: ORLEF7; ISSN: 1523-7060
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 138:24764
GI



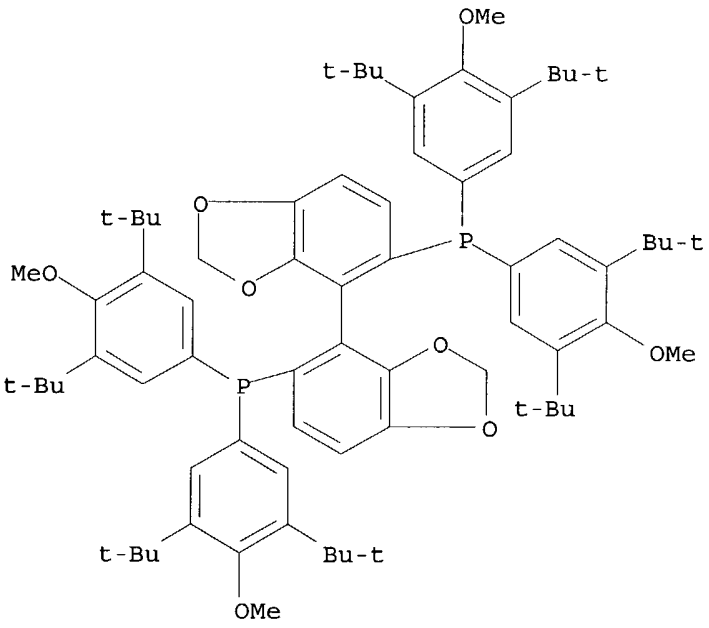
I

AB In situ generation of CuH ligated by Takasago's new nonracemic ligand, DTBM-SEGPHOS I (RR1 = OCH2O, Ar = 3,5-di-tert-butyl-4-methoxy), leads to an esp. reactive reagent capable of effecting asym. hydrosilylation of heteroarom. (H) ketones under very mild conditions. PMHS serves as an inexpensive source of hydride. Substrate-to-ligand ratios on the order of 2000:1 are employed. A comparison was also made with in situ generated I (R = H, R1 = OMe, Ar = 3,5-di-tert-butyl-4-methoxy, 3,5-dimethylphenyl).

IT **210169-40-7**
RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(copper hydride diphosphine complex in situ generation and catalyst for asym. hydrosilylation of heteroarom. ketones)

RN 210169-40-7 CAPLUS

CN Phosphine, [(4S)-[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[bis[3,5-bis(1,1-dimethylethyl)-4-methoxyphenyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:778057 CAPLUS
DOCUMENT NUMBER: 137:294761
TITLE: Chemical bond forming reactions using

.alpha.-halocarbonyl compounds and transmetalation reagents.

INVENTOR(S): Zhang, Xumu; Lei, Aiwen
PATENT ASSIGNEE(S): The Penn State Research Foundation, USA
SOURCE: PCT Int. Appl., 35 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002079339	A2	20021010	WO 2002-US9623	20020329

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

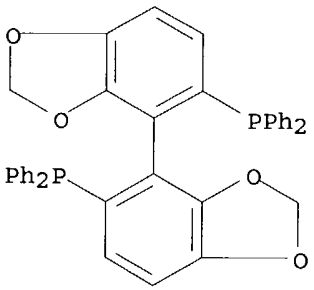
US 2002193543	A1	20021219	US 2002-108420	20020329

PRIORITY APPLN. INFO.: US 2001-280275P P 20010330
OTHER SOURCE(S): CASREACT 137:294761

AB A method of forming a chem. bond comprises combining .gtoreq.1 .alpha.-halocarbonyl compd. with .gtoreq.1 transmetalation reagent comprising a target compd., and forming a chem. bond to or within the target compd. The transmetalation reagents are formed by the addn. of a metal or metal catalyst to a target compd. The target compd. is the compd. undergoing chem. bond formation. Bond formation can be carried out in both intermol. or intramol. reactions. Thus, reaction of 3,5-dimethylphenylboronic acid in the presence of Pd2(dba)3.CHCl3, rac-BINAP, and KF in dioxane gave 97% 3,3',5,5'-tetramethylbiphenyl.

IT **244261-66-3**
RL: CAT (Catalyst use); USES (Uses)
(chem. bond forming reactions using .alpha.-halocarbonyl compds. and transmetalation reagents)

RN 244261-66-3 CAPLUS
CN Phosphine, [(4R)-[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



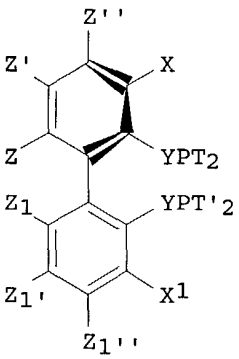
L5 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:391724 CAPLUS
DOCUMENT NUMBER: 136:401880
TITLE: Ortho substituted chiral phosphines and phosphinites and their use in asymmetric catalytic reactions

INVENTOR(S): Zhang, Xumu
PATENT ASSIGNEE(S): The Penn State Research Foundation, USA
SOURCE: PCT Int. Appl., 122 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002040491	A1	20020523	WO 2001-US43779	20011116
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002016719	A5	20020527	AU 2002-16719	20011116
US 2002128501	A1	20020912	US 2001-991261	20011116

PRIORITY APPLN. INFO.: US 2000-249537P P 20001117
US 2001-301221P P 20010627
WO 2001-US43779 W 20011116

OTHER SOURCE(S): CASREACT 136:401880; MARPAT 136:401880
GI



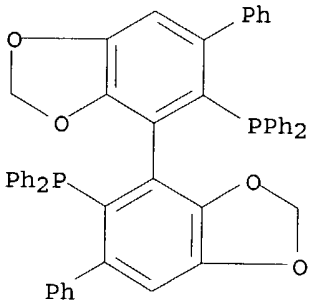
I

AB 3,3'-Substituted chiral biaryl phosphine and phosphinite ligands, I (X, X' = independently (un)substituted alkyl, (un)substituted aryl, alkoxy, organothio, diorganoamido, alkoxycarbonyl, halo, organosilyl, diorganophosphonyl, dialkoxyphosphino; Z, Z1 = independently (un)substituted alkyl, (un)substituted aryl, alkoxy, organothio, diorganoamido, alkoxycarbonyl, halo, organosilyl, diorganophosphonyl, dialkoxyphosphino, bridging group, etc.; Z', Z'', Z1', Z1'' = independently H, (un)substituted alkyl, (un)substituted aryl, alkoxy, organothio, diorganoamido, alkoxycarbonyl, halo, organosilyl, diorganophosphonyl, dialkoxyphosphino, bridging group, etc.; Y, Y' = O, CH2, NH, S, a bond between carbon and phosphorus, etc.; T, T' = (un)substituted alkyl, (un)substituted aryl, alkoxy, etc.) and metal

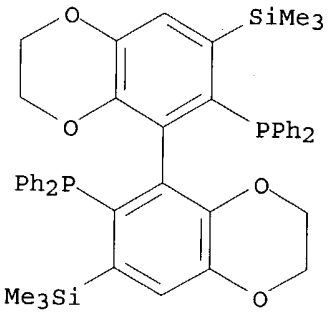
complexes based on such chiral ligands useful in asym. catalysis are disclosed. The metal complexes are useful as catalysts in asym. reactions, such as, hydrogenation, hydride transfer, allylic alkylation, hydrosilylation, hydroboration, hydrovinylation, hydroformylation, hydroformylation, olefin metathesis, hydrocarboxylation, isomerization, cyclopropanation, Diels-Alder reaction, Heck reaction, isomerization, Aldol reaction, Michael addn., epoxidn., Kinetic resoln. and [m + n] cycloaddn. The metal complexes are particularly effective in Ru-catalyzed asym. hydrogenation of beta-ketoesters to beta-hydroxyesters and Ru-catalyzed asym. hydrogenation of enamides to beta amino acids. Thus, (R)-3,3'-diphenyl-2,2'-bis(diphenylphosphinoxy)-1,1'-binaphthyl was prepd. in five steps starting from (R)-BINOL.

IT **428876-57-7P 428876-61-3P 428876-64-6P 428877-12-7P**
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(prepn. of ortho substituted chiral phosphines and phosphinites and their use in asym. catalytic reactions)

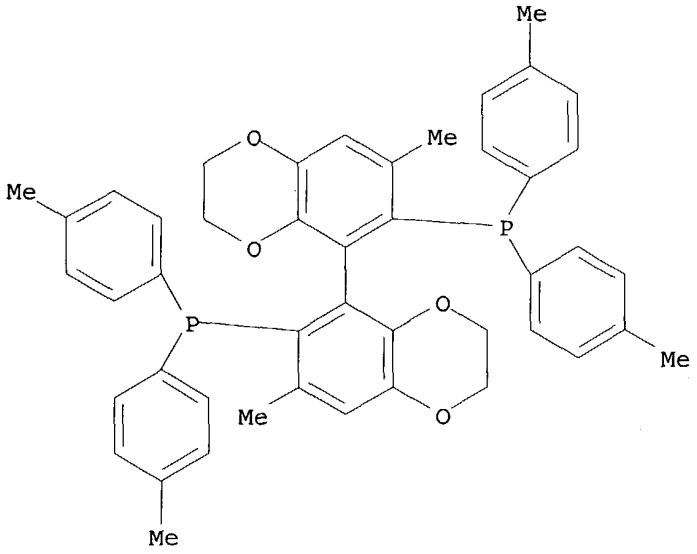
RN 428876-57-7 CAPLUS
CN Phosphine, [(4R)-6,6'-diphenyl[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



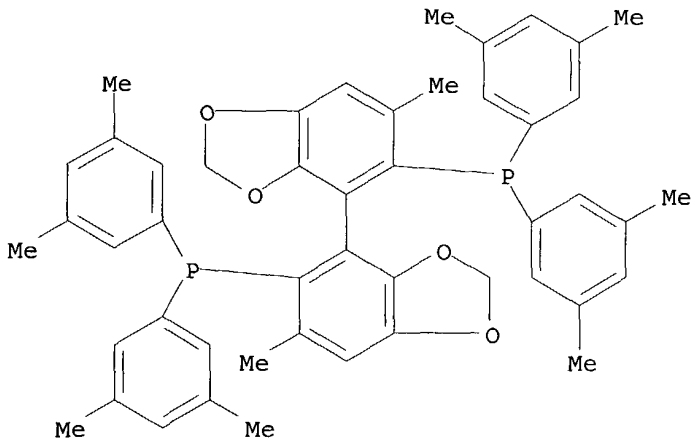
RN 428876-61-3 CAPLUS
CN Phosphine, [(5R)-2,2',3,3'-tetrahydro-7,7'-bis(trimethylsilyl)[5,5'-bi-1,4-benzodioxin]-6,6'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



RN 428876-64-6 CAPLUS
CN Phosphine, [(5R)-2,2',3,3'-tetrahydro-7,7'-dimethyl[5,5'-bi-1,4-benzodioxin]-6,6'-diyl]bis[bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



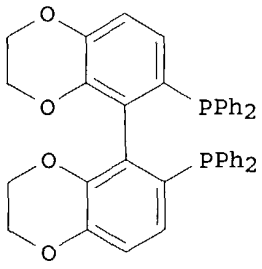
RN 428877-12-7 CAPLUS
CN Phosphine, [(4R)-6,6'-dimethyl[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[bis(3,5-dimethylphenyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:255728 CAPLUS
DOCUMENT NUMBER: 137:154980
TITLE: Synthesis of new chiral diphosphine ligand (BisbenzodioxanPhos) and its application in asymmetric catalytic hydrogenation
AUTHOR(S): Pai, Cheng-Chao; Li, Yue-Ming; Zhou, Zhong-Yuan; Chan, Albert S. C.
CORPORATE SOURCE: Department of Applied Biology and Chemical Technology, Open Laboratory of Chirotechnology of the Institute of Molecular Technology for Drug Design and Synthesis, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, Peop. Rep. China
SOURCE: Tetrahedron Letters (2002), 43(15), 2789-2792

CODEN: TELEAY; ISSN: 0040-4039
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 137:154980
GI



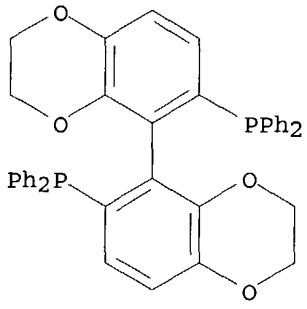
I

AB The new chiral diphosphine ligand [(5,6),(5',6')-bis(1,2-ethylenedioxy)biphenyl-2,2'-diyl]bis(diphenylphosphine) (I; BisbenzodioxanPhos) was successfully prepd. and used in Ru-catalyzed asym. hydrogenation of 2-(6'-methoxy-2'-naphthyl)propenoic acid and .beta.-keto esters with high enantioselectivity (92.2% and up to 99.5% ee, resp.).

IT **445467-61-8P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and hydrogen peroxide oxidn. of)

RN 445467-61-8 CAPLUS

CN Phosphine, [(5R)-2,2',3,3'-tetrahydro[5,5'-bi-1,4-benzodioxin]-6,6'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:830729 CAPLUS
DOCUMENT NUMBER: 135:371876
TITLE: Process for the preparation of l-menthol via successive enantioselective hydrogenation reactions catalyzed by transition metal complexes
INVENTOR(S): Sayo, Noboru; Matsumoto, Takaji
PATENT ASSIGNEE(S): Takasago International Corporation, Japan
SOURCE: Eur. Pat. Appl., 25 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent

LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

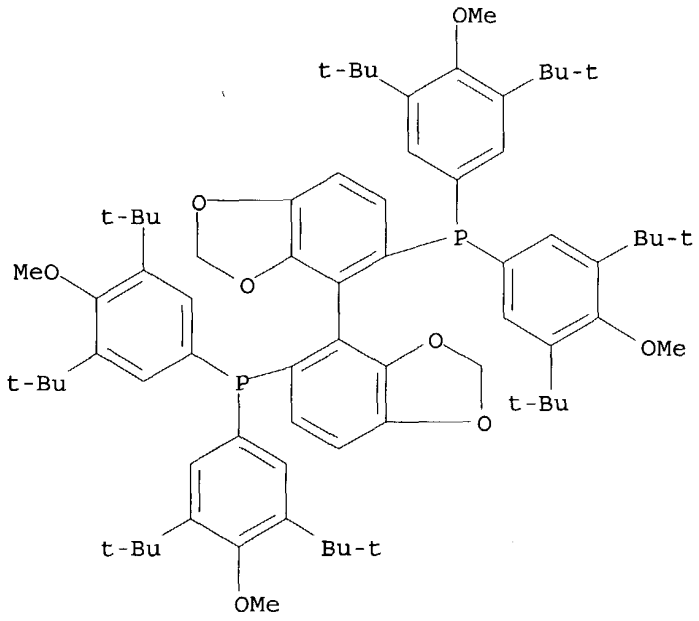
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1153908	A2	20011114	EP 2001-401180	20010509
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 2002007094	A1	20020117	US 2001-849306	20010507
US 6342644	B1	20020129		
JP 2002030009	A2	20020129	JP 2001-138438	20010509

PRIORITY APPLN. INFO.: JP 2000-137388 A 20000510
OTHER SOURCE(S): CASREACT 135:371876; MARPAT 135:371876

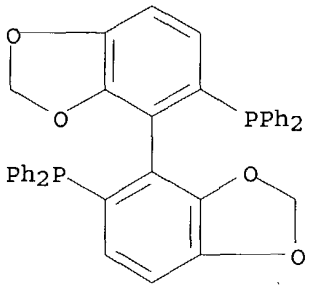
AB A method was presented for the prodn. of 1-menthol via hydrogenation of piperitenone catalyzed by a transition metal complex of a specified optically active phosphine to produce pulegone, hydrogenation of the obtained pulegone with a ruthenium-phosphine-amine complex in the presence of base to obtain pulegol, and further hydrogenation of the pulegol with a transition metal catalyst . Thus, piperitenone in the presence of [Rh(cod)Cl]2, (S)-2,2'-bis[di(3,5-xylyl)phosphino]-1,1'-binaphthyl, and Me(CH2)5P+Ph3Br- in THF was reacted at 50.degree. for 18 h. under a hydrogen pressure of 3 MPa to give (R)-pulegone in 90.1% yield and 97.0% ee. Then, (R)-pulegone in the presence of RuCl2(PPh3)3, H2NCH2CH(OH)CH2NH2, and KOH in 2-propanol was reacted at 25.degree. for 3 h. under a hydrogen pressure of 2 MPa to give (1R)-cis-pulegol in 85% yield. Finally, (1R)-cis-pulegol in the presence of Pd/C in AcOEt was stirred at 60.degree. for 5 h. under a hydrogen pressure of 2 MPa to give a mixt. l-menthol and (+)-neoisomenthol in a 91:9 diastereomeric ratio and 90% yield.

IT **210169-40-7**
RL: CAT (Catalyst use); USES (Uses)
(process for the prepn. of l-menthol via successive stereoselective hydrogenation reactions catalyzed by transition metal complexes)

RN 210169-40-7 CAPLUS
CN Phosphine, [(4S)-[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[bis[3,5-bis(1,1-dimethylethyl)-4-methoxyphenyl]- (9CI) (CA INDEX NAME)

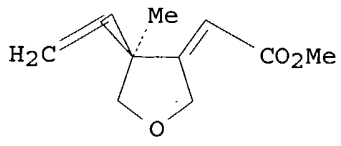


L5 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:262994 CAPLUS
DOCUMENT NUMBER: 135:76619
TITLE: New chiral diphosphine ligands designed to have a narrow dihedral angle in the biaryl backbone
AUTHOR(S): Saito, Takao; Yokozawa, Tohru; Ishizaki, Takero; Moroi, Takashi; Sayo, Noboru; Miura, Takashi; Kumobayashi, Hidenori
CORPORATE SOURCE: Central Research Laboratory, Takasago International Corporation, Kanagawa, 254-0073, Japan
SOURCE: Advanced Synthesis & Catalysis (2001), 343(3), 264-267
CODEN: ASCAF7; ISSN: 1615-4150
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 135:76619
AB A series of novel optically active diphosphine ligands, (4,4'-bi-1,3-benzodioxole)-5,5'-diyl-bis(diarylphosphine)s, which are called SEGPHOS, has been designed and synthesized with dihedral angles in the Ru complexes being less than that in the corresponding BINAP-Ru complex. The stereorecognition abilities of SEGPHOS-Ru complex catalysts in the asym. catalytic hydrogenation of a wide variety of carbonyl compds. are superior to those obsd. with BINAP-Ru complex catalysts.
IT **244261-66-3P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and ruthenium complexation of)
RN 244261-66-3 CAPLUS
CN Phosphine, [(4R)-[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:53872 CAPLUS
DOCUMENT NUMBER: 134:237356
TITLE: Highly enantioselective palladium-catalyzed ene-type cyclization of a 1,6-enyne
AUTHOR(S): Hatano, Manabu; Terada, Masahiro; Mikami, Koichi
CORPORATE SOURCE: Dep. Appl. Chem., Grad. sch. Sci. Eng., Tokyo Inst. Technol., Tokyo, 152-8552, Japan
SOURCE: Angewandte Chemie, International Edition (2001), 40(1), 249-253
CODEN: ACIEF5; ISSN: 1433-7851
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



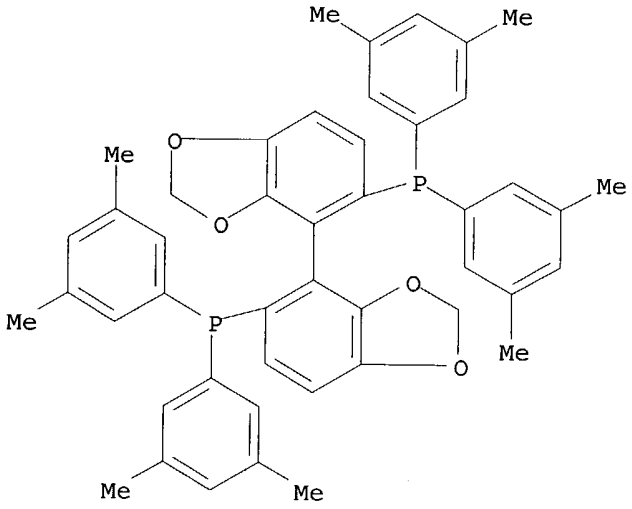
I

AB The authors developed a highly efficient palladium(II)-catalyzed ene-type carbocyclization of 1,6-enyne MeCH=C(Me)CH2OCH2C.tplbond.CCO2Me leading to enantiopure furan (I). This highly enantioselective catalysis is applicable for the construction of an enantioenriched quaternary chiral center. Possible mechanisms including neutral and cationic intermediate have been proposed.

IT **210169-57-6 244261-66-3**
RL: CAT (Catalyst use); USES (Uses)
(chiral ligand; enantioselective palladium-catalyzed ene-type cyclization of a 1,6-enyne)

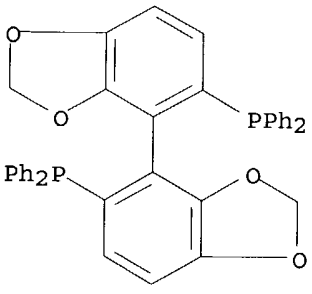
RN 210169-57-6 CAPLUS

CN Phosphine, [(4S)-[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[bis(3,5-dimethylphenyl)- (9CI) (CA INDEX NAME)



RN 244261-66-3 CAPLUS

CN Phosphine, [(4R)-[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)

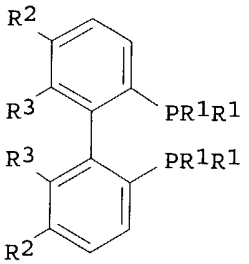


REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:722753 CAPLUS
DOCUMENT NUMBER: 131:331431
TITLE: Preparation of ruthenium iodo complexes containing optically active bidentate phosphine ligands as stereoselective hydrogenation catalysts for 4-methylene-2-oxetanone
INVENTOR(S): Okeda, Yoshiki; Hashimoto, Tsutomu; Hori, Yoji; Hagiwara, Toshimitsu
PATENT ASSIGNEE(S): Takasago International Corporation, Japan
SOURCE: Eur. Pat. Appl., 57 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 955303	A2	19991110	EP 1999-401120	19990507
EP 955303	A3	20010103		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 11322734	A2	19991124	JP 1998-142233	19980508
JP 2000288399	A2	20001017	JP 1999-93644	19990331
US 6043380	A	20000328	US 1999-307750	19990510
EP 1041079	A2	20001004	EP 2000-400847	20000328
EP 1041079	A3	20010103		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				

PRIORITY APPLN. INFO.: JP 1998-142233 A 19980508
JP 1999-93644 A 19990331
OTHER SOURCE(S): MARPAT 131:331431
GI



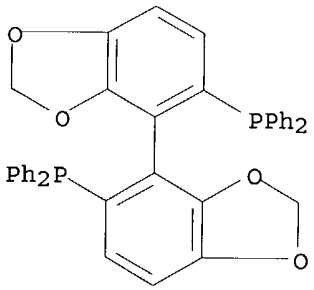
I

AB Provided are ruthenium iodo complexes contg. optically active bidentate phosphine ligands, [Ru-(I)q-(T1)n(sol)r(L)]m(T2)p(I)s (T1 = carboxylate anion, sol = polar solvent, L = optically active bidentate phosphine ligand, T2 = anion different from halide and carboxylate anion, n = 0-1, r = 0, 3, 4, m = 1-2, q = 0-1, m = 2, 1, or 1.5, p = 0 or 1, s = 0-2). The optically active bidentate phosphine ligands include diphosphines I (R1 = various (un)substituted aryl groups; R2, R3 = H, halo, C1-4 alkyl, C1-4 alkoxy, or R2R3 = 5- or 6-membered ring). The complexes may be prepd. by

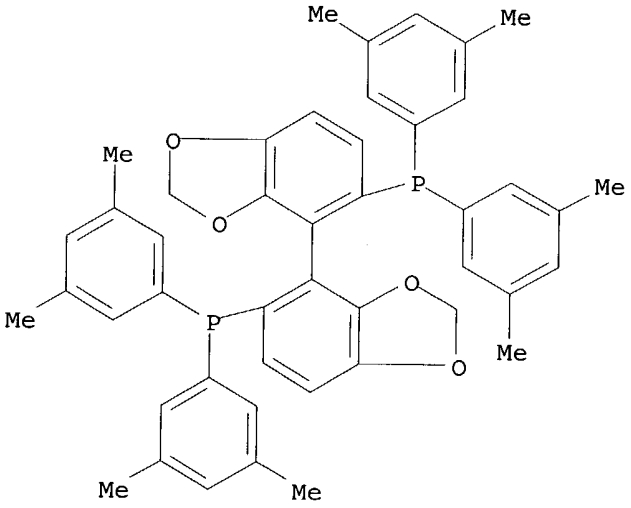
reaction of [RuI(arene)(L)]I or [RuI2(arene)]2 with an alkali or alk. earth metal carboxylate salt in a polar non-nitrile-type solvent. The ruthenium complexes are catalysts for the asym. hydrogenation of 4-methylene-2-oxetanone to give chiral 4-methyl-2-oxetanone. Thus, reaction of [RuI2(p-cymene)]2 with (S)-BINAP (BINAP = 2,2'-bis(diphenylphosphino)1,1'-binaphthyl) in MeOH under N2 at 55.degree. for 16 h, followed by removal of MeOH, and further reaction with NaOAc in CH2Cl2/H2O under N2 for 16 h afforded [RuI(MeCO2){(S)-BINAP}]2 in 97% yield. Hydrogenation of 4-methylene-2-oxetanone in THF with added deaerated H2O in the presence of [RuI(MeCO2){(S)-BINAP}]2 afforded (R)-4-methyl-2-oxetanone in 94% e.e.

IT **210169-54-3 210169-57-6**
RL: RCT (Reactant); RACT (Reactant or reagent)
(for prepn. of ruthenium iodo complexes contg. optically active bidentate phosphine ligands)

RN 210169-54-3 CAPLUS
CN Phosphine, (4S)-[4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[diphenyl- (9CI) (CA INDEX NAME)

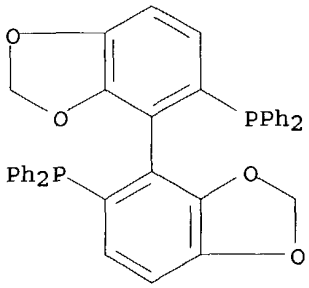


RN 210169-57-6 CAPLUS
CN Phosphine, [(4S)-[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[bis(3,5-dimethylphenyl)- (9CI) (CA INDEX NAME)



IT **210169-54-3DP**, ruthenium iodo complexes with/without carboxylato ligands
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(prepn. as catalysts for stereoselective hydrogenation of

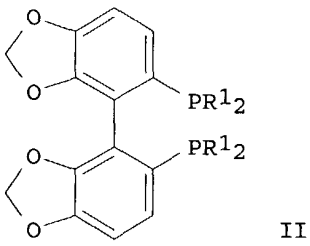
methyleneoxetanone)
RN 210169-54-3 CAPLUS
CN Phosphine, (4S)-[4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[diphenyl- (9CI) (CA INDEX NAME)



L5 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:631421 CAPLUS
DOCUMENT NUMBER: 131:251749
TITLE: Preparation of ruthenium chiral [4,4'-bi-1,3-benzodioxole]-5,5'-diyldiphosphine complexes as asymmetric hydrogenation catalysts
INVENTOR(S): Sayo, Noboru; Saito, Takao; Yokozawa, Tohru
PATENT ASSIGNEE(S): Takasago International Corporation, Japan
SOURCE: Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 945457	A2	19990929	EP 1999-400657	19990317
EP 945457	A3	20001213		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 11269185	A2	19991005	JP 1998-92174	19980323
US 6313317	B1	20011106	US 1999-273260	19990322

PRIORITY APPLN. INFO.: JP 1998-92174 A 19980323
OTHER SOURCE(S): MARPAT 131:251749
GI



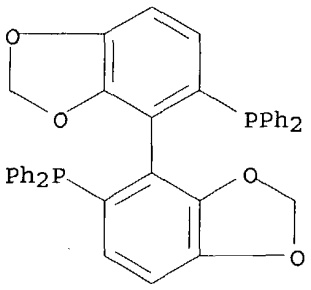
II

AB Disclosed is a novel ruthenium-phosphine complex usable as the catalyst giving a high enantiomer excess in an asym. reaction and a method for producing the complex, the method ensuring the synthesis of the complex as

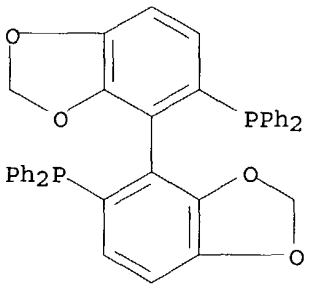
a pure and single product without the necessity of refining. The ruthenium-phosphine complex is represented by the general formula [{RuX(L)}2(.mu.-X)3]-[(R2)2NH2]+ (I) wherein R2 represents a hydrogen atom, an alkyl group having 1-5 carbon atoms, a cycloalkyl group, a Ph group which may have a substituted group or a benzyl group which may have a substituted group and L represents a diphosphine ligand (II) wherein R1 represents a Ph group or a naphthyl group which may have a substituted group, a cyclohexyl group or a cyclopentyl group and X represents a halogen atom. The method for prepg. a ruthenium-phosphine complex represented by the above general formula I was characterized in that a ruthenium complex [RuX(arene)(L)]X (wherein X, arene, L and R1 are the same as defined above) and an ammonium salt (R2)2NH.cntdot.RX (wherein X and R2 are the same as defined above) were used as starting material and are reacted with each other. Thus, [{RuCl((R)-SEGPHOS)}2(.mu.-Cl)3][Me2NH2] (SEGPHOS = II, R1 = Ph) was prepd. from [RuCl2(benzene)]2 and Me2NH.cntdot.HCl in 95% yield and was shown to catalyze the hydrogenation of 2-oxopropanol to 1,2-dihydroxypropanol in 95% yield with 98% ee.

IT **210169-54-3 244261-66-3 244261-68-5 244261-70-9 244261-72-1 244261-75-4 244261-78-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant for prepn. of ruthenium chiral (bibenzodioxole)diyldiphosphine complexes as asym. hydrogenation catalysts)

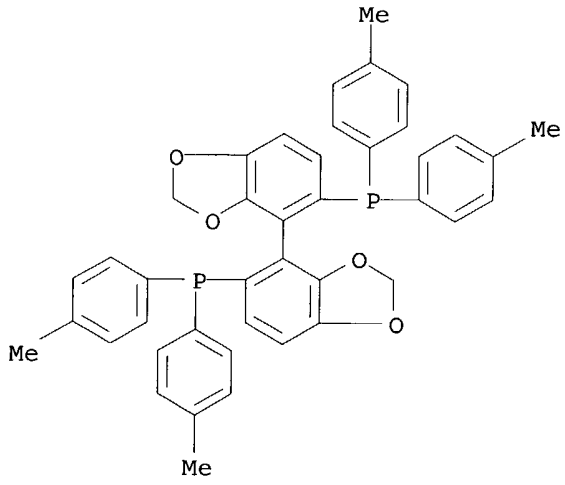
RN 210169-54-3 CAPLUS
CN Phosphine, (4S)-[4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[diphenyl- (9CI) (CA INDEX NAME)



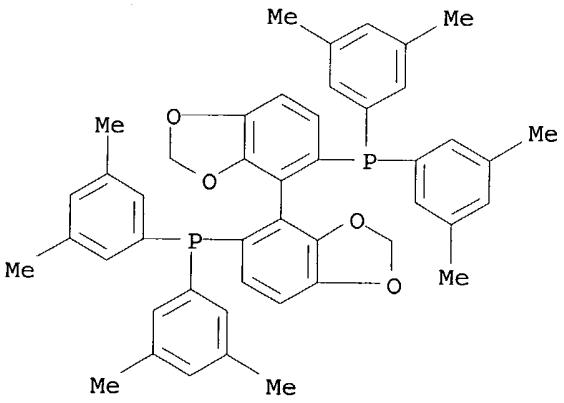
RN 244261-66-3 CAPLUS
CN Phosphine, [(4R)-[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



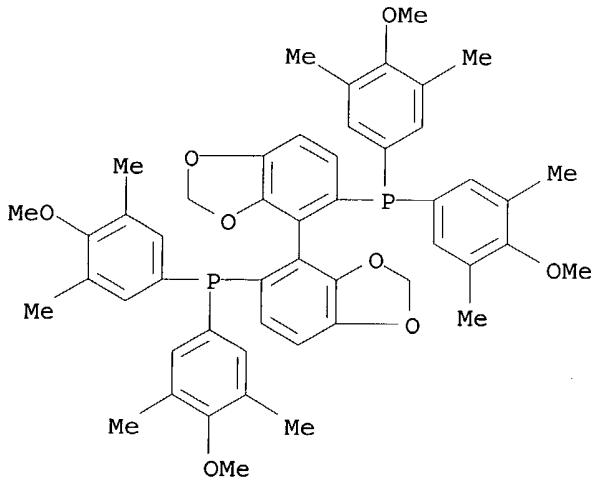
RN 244261-68-5 CAPLUS
CN Phosphine, [4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[bis(4-methylphenyl)-(9CI) (CA INDEX NAME)



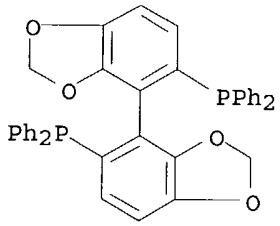
RN 244261-70-9 CAPLUS
CN Phosphine, [4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[bis(3,5-dimethylphenyl)-
(9CI) (CA INDEX NAME)



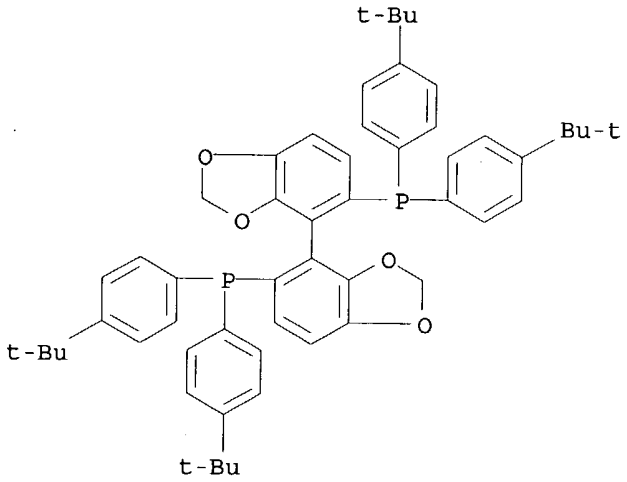
RN 244261-72-1 CAPLUS
CN Phosphine, [4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[bis(4-methoxy-3,5-
dimethylphenyl)- (9CI) (CA INDEX NAME)



RN 244261-75-4 CAPLUS
CN Phosphine, [4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[diphenyl- (9CI) (CA INDEX NAME)



RN 244261-78-7 CAPLUS
CN Phosphine, [4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[bis[4-(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)

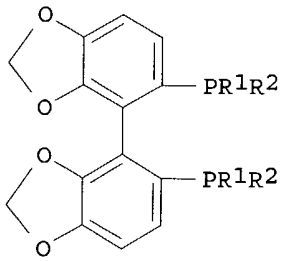


L5 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1998:466349 CAPLUS

DOCUMENT NUMBER: 129:124055
TITLE: Preparation of chiral (5,6),(5',6')-bis(3,4-methylenedioxy)biphenyl-2,2'-diylphosphine compound, intermediate for preparing the same, transition metal complex having the same diphosphine compound as ligand and asymmetric hydrogenation catalyst
INVENTOR(S): Saito, Takao; Yokozawa, Tohru; Xiaoyaong, Zhang; Sayo, Noboru
PATENT ASSIGNEE(S): Takasago International Corp., Japan
SOURCE: Eur. Pat. Appl., 17 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 850945	A1	19980701	EP 1997-403152	19971224
EP 850945	B1	20021127		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 10182678	A2	19980707	JP 1996-359818	19961226
JP 3148136	B2	20010319		
US 5872273	A	19990216	US 1997-996405	19971222

PRIORITY APPLN. INFO.: JP 1996-359818 A 19961226
OTHER SOURCE(S): MARPAT 129:124055
GI

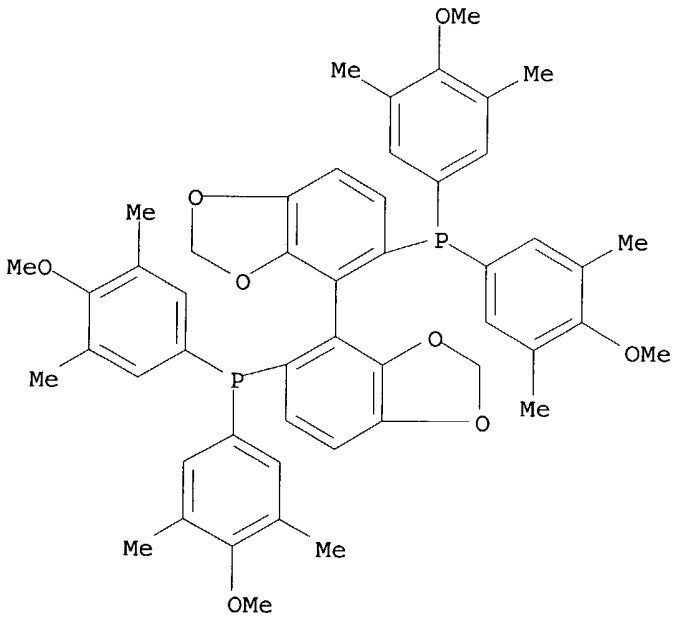


I

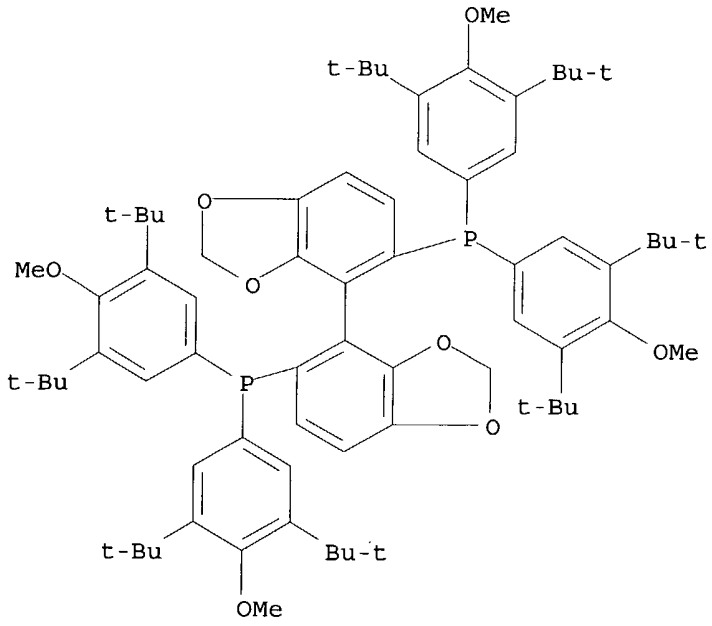
AB The present invention provides a novel diphosphine compd. of the formula (I; R1 and R2 represent independently cycloalkyl, unsubstituted or substituted Ph, or five-membered heteroarom. ring residue). The compd. is useful as a ligand having the excellent performance (diastereoselectivity, enantioselectivity, and catalytic activity) for an asym. reaction, in particular, asym. hydrogenation catalyst. Thus, diphenyl[2-iodo-(3,4)-methylenedioxyphenyl]phosphine (prepn. given) was coupled to each other in the presence of Cu powder in DMF at 140.degree. for 8 h to give (.+-.)-[(5,6)(5',6')-bis(methylenedioxy)biphenyl-2,2'-diyl]bis(diphenylphosphine oxide) [(.+-.)-II]. Optical resoln. of the latter compd. by cyclocondensation with (-)-dibenzoyl-L-tartaric acid in EtOAc at 60.degree. for 30 min followed by alkali hydrolysis gave (-)-II, which was reduced by SiCl4 in the presence of dimethylaniline in toluene at 100.degree. for 4 h to give (-)-I (R1 = R2 = Ph) [(-)-SEGPHOS]. [Ru(COD)Cl2]2, (-)-SEGPHOS, Et3N, and toluene was refluxed for 15 h under N followed distg. off the solvent and vacuum drying to give the catalyst Ru2Cl4[(-)-SEGPHOS]2NEt3. The latter catalyst, 2-oxo-1-propanol, and MeOH was autoclaved with stirring at H pressure 10 atm and 65.degree. for 16 to give optically active 1,2-propanediol of 97.4%ee in 99.8%.

IT **210169-38-3P 210169-40-7P 210169-42-9P**
210169-44-1P 210169-46-3P 210169-48-5P
210169-50-9P 210169-52-1P
RL: CAT (Catalyst use); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(prepn. of chiral bis(methylenedioxy)biphenyldiylphosphine and their transition metal complexes as ligands and asym. hydrogenation catalysts)

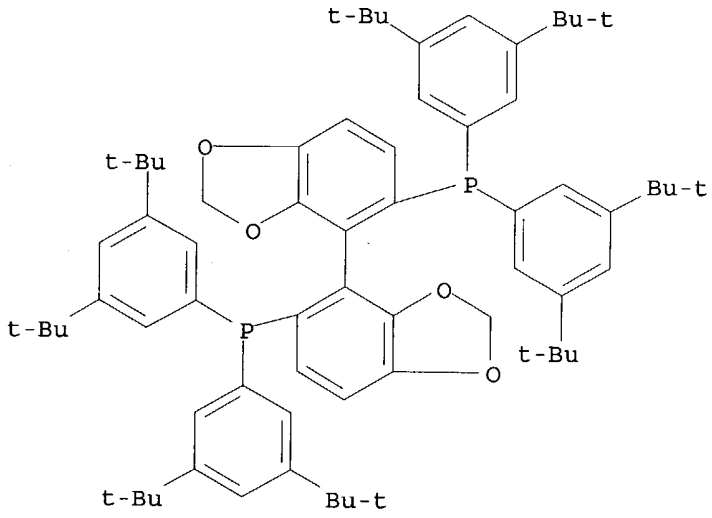
RN 210169-38-3 CAPLUS
CN Phosphine, [(4S)-[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[bis(4-methoxy-3,5-dimethylphenyl)- (9CI) (CA INDEX NAME)



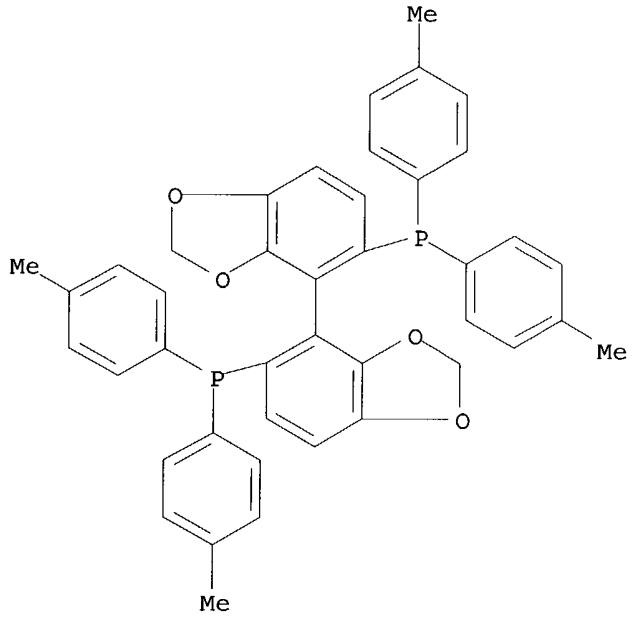
RN 210169-40-7 CAPLUS
CN Phosphine, [(4S)-[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[bis[3,5-bis(1,1-dimethylethyl)-4-methoxyphenyl]- (9CI) (CA INDEX NAME)



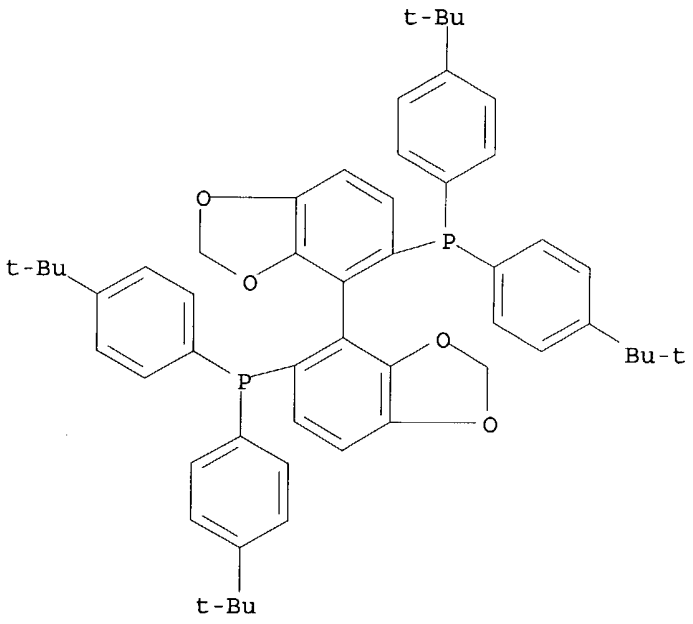
RN 210169-42-9 CAPLUS
CN Phosphine, [4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[bis[3,5-bis(1,1-dimethylethyl)phenyl]-, (+)- (9CI) (CA INDEX NAME)



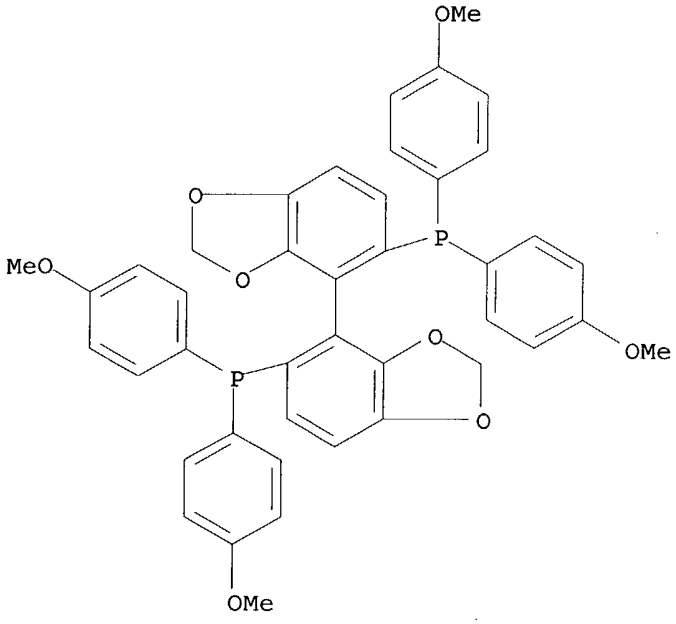
RN 210169-44-1 CAPLUS
CN Phosphine, [(4S)-[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



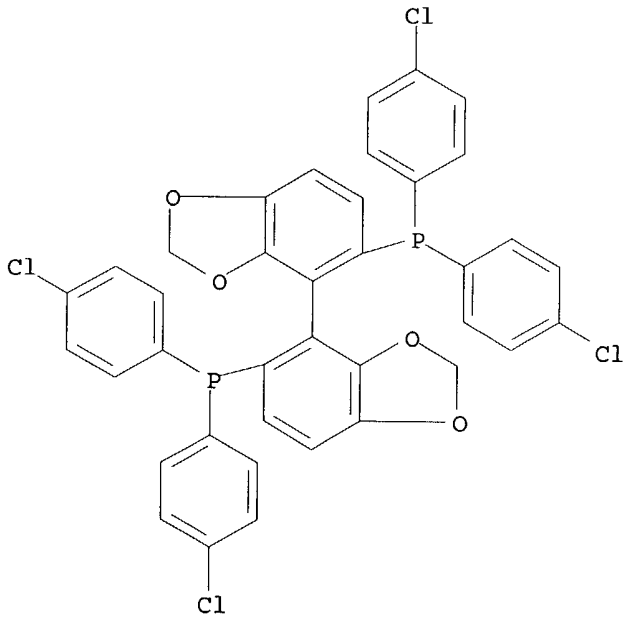
RN 210169-46-3 CAPLUS
CN Phosphine, [4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[bis[4-(1,1-dimethylethyl)phenyl]-, (+)- (9CI) (CA INDEX NAME)



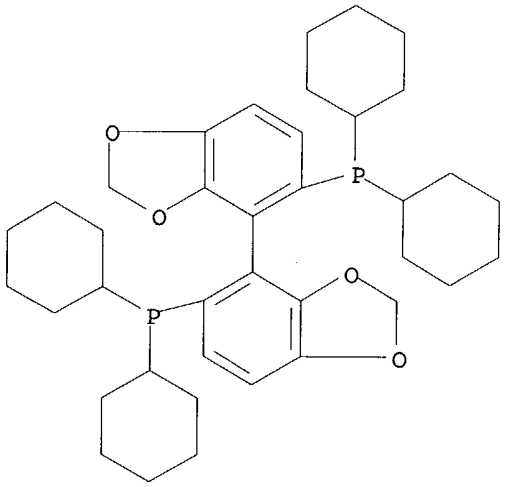
RN 210169-48-5 CAPLUS
CN Phosphine, [(4S)-[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[bis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



RN 210169-50-9 CAPLUS
CN Phosphine, [4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[bis(4-chlorophenyl)-, (+)- (9CI) (CA INDEX NAME)

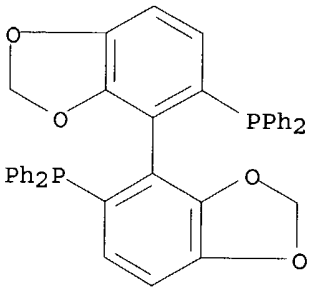


RN 210169-52-1 CAPLUS
CN Phosphine, [4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[dicyclohexyl-, (+)- (9CI) (CA INDEX NAME)

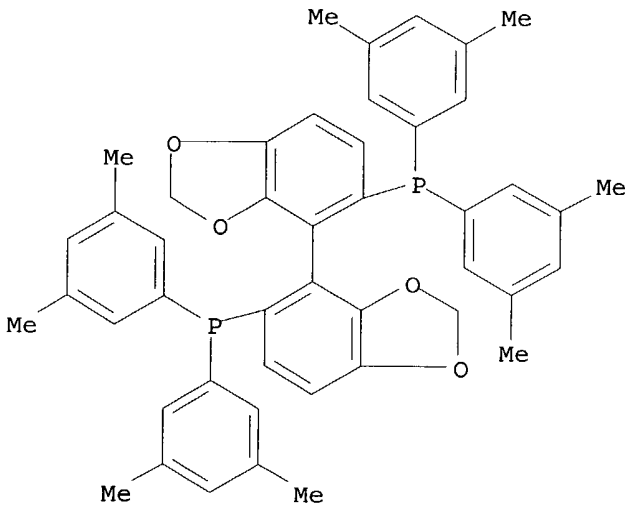


IT **210169-54-3P 210169-57-6P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. of chiral bis(methylenedioxy)biphenyldiylphosphine and their transition metal complexes as ligands and asym. hydrogenation catalysts)

RN 210169-54-3 CAPLUS
CN Phosphine, (4S)-[4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[diphenyl- (9CI) (CA INDEX NAME)



RN 210169-57-6 CAPLUS
CN Phosphine, [(4S)-[4,4'-bi-1,3-benzodioxole]-5,5'-diyl]bis[bis(3,5-dimethylphenyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> file beilstein

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FULL ESTIMATED COST	46.61	213.05

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-6.51	-6.51

FILE 'BEILSTEIN' ENTERED AT 16:06:59 ON 31 JAN 2003

FILE RELOADED ON OCTOBER 20, 2002

FILE COVERS 1779 TO 2001.
*** FILE CONTAINS 8,374,887 SUBSTANCES ***

>>> For the revised summary sheet please see:
http://info.cas.org/ONLINE/DBSS/beilsteinss.html <<<

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For additional information see HELP RXS. <<<

>>> FOR SEARCHING PREPARATIONS SEE HELP PRE <<<

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* PLEASE NOTE THAT THERE ARE NO FORMATS FREE OF COST. *
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     FILE 'REGISTRY' ENTERED AT 15:40:06 ON 31 JAN 2003
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L2             STRUCTURE UPLOADED
L3           1 S L2
L4          21 S L2 FULL

     FILE 'CAPLUS' ENTERED AT 16:05:27 ON 31 JAN 2003
L5          10 S L4

     FILE 'BEILSTEIN' ENTERED AT 16:06:59 ON 31 JAN 2003

=> s l4 full
L6           0 L4

=> s l1 full
FULL SEARCH INITIATED 16:07:27 FILE 'BEILSTEIN'
FULL SCREEN SEARCH COMPLETED -     297 TO ITERATE

100.0% PROCESSED     297 ITERATIONS                                  0 ANSWERS
SEARCH TIME: 00.00.03

L7           0 SEA SSS FUL L1

=> s l2 full
FULL SEARCH INITIATED 16:07:36 FILE 'BEILSTEIN'
FULL SCREEN SEARCH COMPLETED -       8 TO ITERATE

100.0% PROCESSED       8 ITERATIONS                                  3 ANSWERS
SEARCH TIME: 00.00.05

L8           3 SEA SSS FUL L2

=> d ide


L8   ANSWER 1 OF 3 BEILSTEIN COPYRIGHT 2003 BEILSTEIN CDS MDL

     Beilstein Records (BRN):        8893429
     Chemical Name (CN):             DTBM-SEGPHOS
     Autonom Name (AUN):             5,5'-bis-<bis-(3,5-di-tert-butyl-4-methoxy-
                                     phenyl)-phosphanyl>-
                                     <4,4'>bi<benzo<1,3>dioxolyl>
     Molec. Formula (MF):            C74 H100 O8 P2
     Molecular Weight (MW):          1179.55
     Lawson Number (LN):             24014, 16730, 289
     Compound Type (CTYPE):          heterocyclic
     Constitution ID (CONSID):       7524026
     Tautomer ID (TAUTID):           8359415
     Entry Date (DED):               2001/10/25
     Update Date (DUPD):             2001/10/25



* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY -  AVAILABLE VIA OFFLINE PRINT *

   Field Availability:
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Code	Name	Occurrence
BRN	Beilstein Records	1
CN	Chemical Name	1
AUN	Autonomname	1
MF	Molecular Formula	1
FW	Formular Weight	1
LN	Lawson Number	3
CTYPE	Compound Type	1
CONSID	Constitution ID	1
TAUTID	Tautomer ID	1
ED	Entry Date	1
UPD	Update Date	1

This substance also occurs in Reaction Documents:

Code	Name	Occurrence
RX	Reaction Documents	1
RXPRO	Substance is Reaction Product	1

=> d frxpro

L8 ANSWER 1 OF 3 BEILSTEIN COPYRIGHT 2003 BEILSTEIN CDS MDL

Reaction:
RX

Reaction ID (.ID):	8857498
Reactant BRN (.RBRN):	8893664
Reactant (.RCT):	5,5'-bis-<bis-(3,5-di-tert-butyl-4-methoxy-phenyl)-phosphinoyl>-<4,4'>bi<benzo<1,3>dioxolyl>
Product BRN (.PBRN):	8893429
Product (.PRO):	5,5'-bis-<bis-(3,5-di-tert-butyl-4-methoxy-phenyl)-phosphanyl>-<4,4'>bi<benzo<1,3>dioxolyl>
No. of React. Details (.NVAR):	1

Reaction Details:
RX

Reaction RID (.RID):	8857498.1
Reaction Classification (.CL):	Multistage
Nr. of Stages (.SNR):	2
Stage 1	
Reagent (.RGT):	Cl3SiH, N,N-dimethylaniline
Solvent (.SOL):	toluene
Other Conditions (.COND):	Heating
Stage 2	
Reagent (.RGT):	aq. NaOH
Solvent (.SOL):	toluene
Temperature (.T):	20 Cel

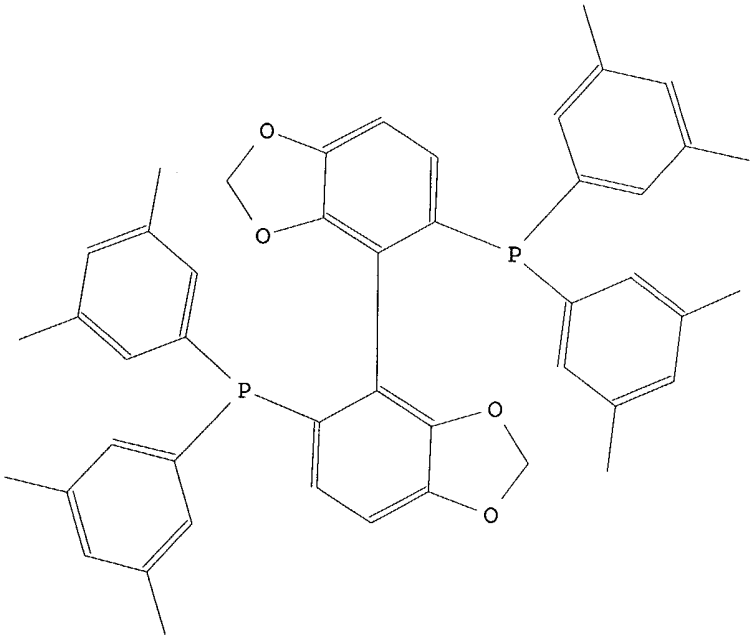
Reference(s):

1. Saito, Takao; Yokozawa, Tohru; Ishizaki, Takero; Moroi, Takashi; Sayo, Noboru; Miura, Takashi; Kumobayashi, Hidenori, Adv.Synth.Catal., CODEN: ASCAF7, 343(3), <2001>, 264 - 268; BABS-6289823

=> d 2-3

L8 ANSWER 2 OF 3 BEILSTEIN COPYRIGHT 2003 BEILSTEIN CDS MDL

Beilstein Records (BRN):	8889401
Chemical Name (CN):	DM-SEGPHOS
Autonom Name (AUN):	5,5'-bis-<bis-(3,5-dimethyl-phenyl)-phosphanyl>-<4,4'>bi<benzo<1,3>dioxolyl>
Molec. Formula (MF):	C46 H44 O4 P2
Molecular Weight (MW):	722.80
Lawson Number (LN):	24014, 16735
Compound Type (CTYPE):	heterocyclic
Constitution ID (CONSID):	7520808
Tautomer ID (TAUTID):	8350238
Entry Date (DED):	2001/10/25
Update Date (DUPD):	2001/10/25



Field Availability:

Code	Name	Occurrence
BRN	Beilstein Records	1
CN	Chemical Name	1
AUN	Autonomname	1
MF	Molecular Formula	1
FW	Formular Weight	1
LN	Lawson Number	2
CTYPE	Compound Type	1
CONSID	Constitution ID	1
TAUTID	Tautomer ID	1
ED	Entry Date	1
UPD	Update Date	1

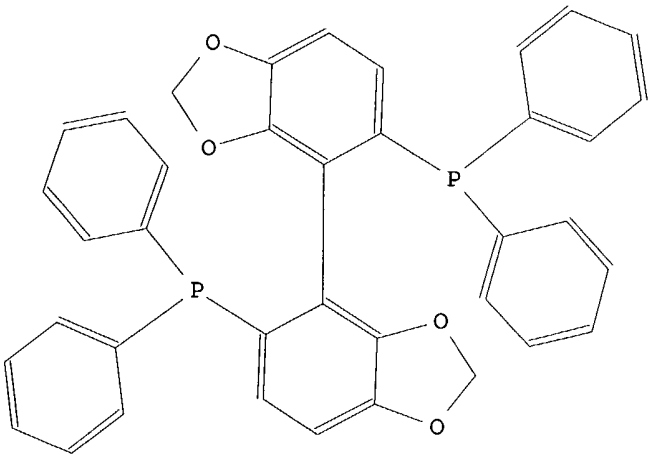
This substance also occurs in Reaction Documents:

Code	Name	Occurrence

RX	Reaction Documents	1
RXPRO	Substance is Reaction Product	1

L8 ANSWER 3 OF 3 BEILSTEIN COPYRIGHT 2003 BEILSTEIN CDS MDL

Beilstein Records (BRN):	8886882
Chemical Name (CN):	(R)-(+)-(4,4'-bi-1,3-benzodioxole)-5,5'-diyl-bis(diphenylphosphine), (R)-SEGPHOS
Autonom Name (AUN):	5,5'-bis-diphenylphosphanyl-<4,4'>bi<benzo<1,3>dioxolyl>
Molec. Formula (MF):	C38 H28 O4 P2
Molecular Weight (MW):	610.58
Lawson Number (LN):	24014, 16731
File Segment (FS):	Stereo compound
Compound Type (CTYPE):	heterocyclic
Constitution ID (CONSID):	7516387
Tautomer ID (TAUTID):	8344967
Entry Date (DED):	2001/10/25
Update Date (DUPD):	2001/10/25



Fragment Notes:
Stereo Descriptor: R(a)

Field Availability:

Code	Name	Occurrence
BRN	Beilstein Records	1
CN	Chemical Name	2
AUN	Autonomname	1
MF	Molecular Formula	1
FW	Formular Weight	1
LN	Lawson Number	2
FS	File Segment	1
CTYPE	Compound Type	1
CONSID	Constitution ID	1
TAUTID	Tautomer ID	1
ED	Entry Date	1
UPD	Update Date	1
MP	Melting Point	1
NMR	Nuclear Magnetic Resonance	3

ORP	Optical Rotatory Power	1

This substance also occurs in Reaction Documents:

Code	Name	Occurrence
RX	Reaction Documents	1
RXPRO	Substance is Reaction Product	1

=> d frxpro

L8 ANSWER 1 OF 3 BEILSTEIN COPYRIGHT 2003 BEILSTEIN CDS MDL

Reaction:
RX

Reaction ID (.ID):	8857498
Reactant BRN (.RBRN):	8893664
Reactant (.RCT):	5,5'-bis-<bis-(3,5-di-tert-butyl-4-methoxy-phenyl)-phosphinoyl>-<4,4'>bi<benzo<1,3>dioxolyl>
Product BRN (.PBRN):	8893429
Product (.PRO):	5,5'-bis-<bis-(3,5-di-tert-butyl-4-methoxy-phenyl)-phosphanyl>-<4,4'>bi<benzo<1,3>dioxolyl>
No. of React. Details (.NVAR):	1

Reaction Details:
RX

Reaction RID (.RID):	8857498.1
Reaction Classification (.CL):	Multistage
Nr. of Stages (.SNR):	2
Stage 1	
Reagent (.RGT):	Cl3SiH, N,N-dimethylaniline
Solvent (.SOL):	toluene
Other Conditions (.COND):	Heating
Stage 2	
Reagent (.RGT):	aq. NaOH
Solvent (.SOL):	toluene
Temperature (.T):	20 Cel
Reference(s):	

1. Saito, Takao; Yokozawa, Tohru; Ishizaki, Takero; Moroi, Takashi; Sayo, Noboru; Miura, Takashi; Kumobayashi, Hidenori, Adv.Synth.Catal., CODEN: ASCAF7, 343(3), <2001>, 264 - 268; BABS-6289823

=> d frxpro 2-3

L8 ANSWER 2 OF 3 BEILSTEIN COPYRIGHT 2003 BEILSTEIN CDS MDL

Reaction:
RX

Reaction ID (.ID):	8856511
Reactant BRN (.RBRN):	8890075
Reactant (.RCT):	5,5'-bis-<bis-(3,5-dimethyl-phenyl)-phosphinoyl>-<4,4'>bi<benzo<1,3>dioxolyl>
Product BRN (.PBRN):	8889401
Product (.PRO):	5,5'-bis-<bis-(3,5-dimethyl-phenyl)-phosphanyl>-<4,4'>bi<benzo<1,3>dioxolyl>
No. of React. Details (.NVAR):	1

Reaction Details:

RX

Reaction RID (.RID):	8856511.1
Reaction Classification (.CL):	Multistage
Nr. of Stages (.SNR):	2
Stage 1	
Reagent (.RGT):	Cl3SiH, N,N-dimethylaniline
Solvent (.SOL):	toluene
Other Conditions (.COND):	Heating
Stage 2	
Reagent (.RGT):	aq. NaOH
Solvent (.SOL):	toluene
Temperature (.T):	20 Cel
Reference(s):	

1. Saito, Takao; Yokozawa, Tohru; Ishizaki, Takero; Moroi, Takashi; Sayo, Noboru; Miura, Takashi; Kumobayashi, Hidenori, Adv.Synth.Catal., CODEN: ASCAF7, 343(3), <2001>, 264 - 268; BABS-6289823

L8 ANSWER 3 OF 3 BEILSTEIN COPYRIGHT 2003 BEILSTEIN CDS MDL

Reaction:
RX

Reaction ID (.ID):	8855748
Reactant BRN (.RBRN):	8887491
Reactant (.RCT):	(R)-(+)-(4,4'-bi-1,3-benzodioxole)-5,5'-diyl-bis(diphenylphosphine oxide)
Product BRN (.PBRN):	8886882
Product (.PRO):	(R)-(+)-(4,4'-bi-1,3-benzodioxole)-5,5'-diyl-bis(diphenylphosphine)
No. of React. Details (.NVAR):	1

Reaction Details:
RX

Reaction RID (.RID):	8855748.1
Reaction Classification (.CL):	Multistage
Yield (.YDT):	95 percent (BRN=8886882)
Nr. of Stages (.SNR):	2
Stage 1	
Reagent (.RGT):	Cl3SiH, N,N-dimethylaniline
Solvent (.SOL):	toluene
Time (.TIM):	4 hour(s)
Temperature (.T):	110 Cel
Stage 2	
Reagent (.RGT):	aq. NaOH
Solvent (.SOL):	toluene
Time (.TIM):	30 min
Temperature (.T):	20 Cel
Reference(s):	

1. Saito, Takao; Yokozawa, Tohru; Ishizaki, Takero; Moroi, Takashi; Sayo, Noboru; Miura, Takashi; Kumobayashi, Hidenori, Adv.Synth.Catal., CODEN: ASCAF7, 343(3), <2001>, 264 - 268; BABS-6289823

=> file reg

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	59.43	272.48
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-6.51

FILE 'REGISTRY' ENTERED AT 16:10:56 ON 31 JAN 2003
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 30 JAN 2003 HIGHEST RN 483965-49-7
DICTIONARY FILE UPDATES: 30 JAN 2003 HIGHEST RN 483965-49-7

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when conducting SmartSELECT searches.

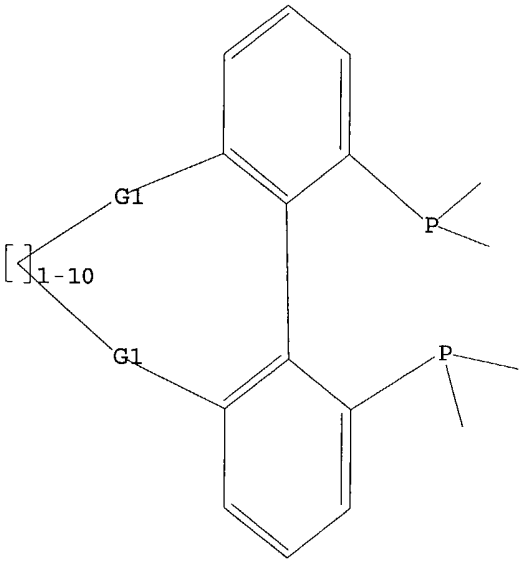
Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details:
http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf

=>
Uploading 09991261.str

L9 STRUCTURE UPLOADED

=> d
L9 HAS NO ANSWERS
L9 STR



G1 O,N

Structure attributes must be viewed using STN Express query preparation.

=> s l9
SAMPLE SEARCH INITIATED 16:11:13 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 63 TO ITERATE

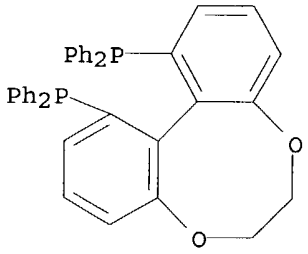
100.0% PROCESSED 63 ITERATIONS 4 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 784 TO 1736
PROJECTED ANSWERS: 4 TO 200

L10 4 SEA SSS SAM L9

=> d scan

L10 4 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, [(12aR)-6,7-dihydrodibenzo[e,g][1,4]dioxocin-1,12-diyl]bis[diphenyl- (9CI)
MF C38 H30 O2 P2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

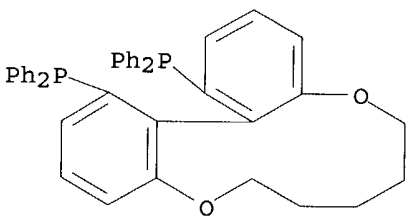
=> s l9 full
FULL SEARCH INITIATED 16:11:27 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 992 TO ITERATE

100.0% PROCESSED 992 ITERATIONS 56 ANSWERS
SEARCH TIME: 00.00.01

L11 56 SEA SSS FUL L9

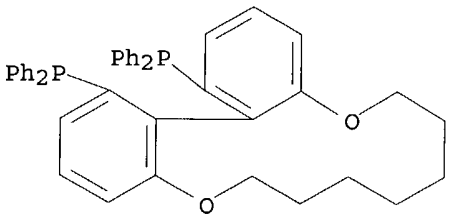
=> d scan

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, [(15aR)-7,8,9,10-tetrahydro-6H-dibenzo[b,d][1,6]dioxacycloundecin-1,15-diyl]bis[diphenyl- (9CI)
MF C41 H36 O2 P2

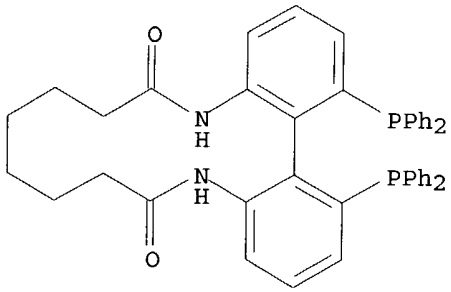


HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):10

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, [(17aR)-7,8,9,10,11,12-hexahydro-6H-dibenzo[b,d][1,6]dioxacyclotridecin-1,17-diyl]bis[diphenyl- (9CI)
MF C43 H40 O2 P2

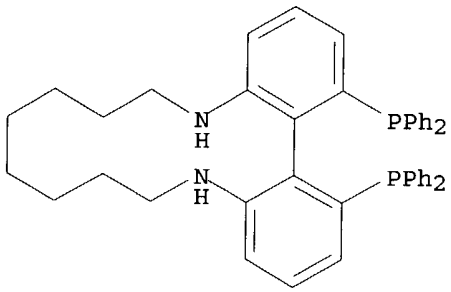


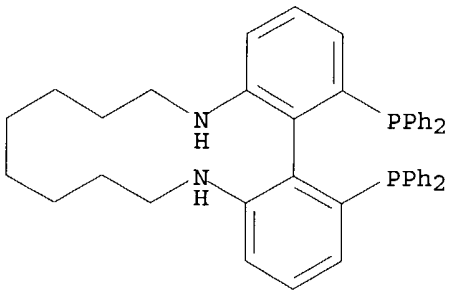
L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Dibenzo[b,d][1,6]diazacyclotetradecine-6,13-dione, 1,18-bis(diphenylphosphino)-5,7,8,9,10,11,12,14-octahydro-, (18aR)- (9CI)
MF C44 H40 N2 O2 P2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

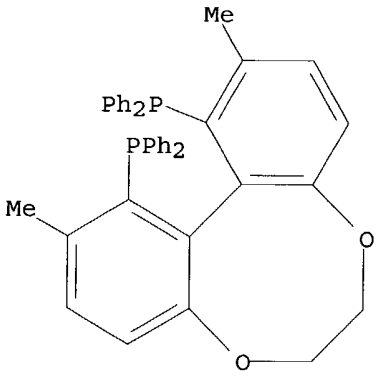
L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Dibenzo[b,d][1,6]diazacyclotetradecine, 1,18-bis(diphenylphosphino)-5,6,7,8,9,10,11,12,13,14-decahydro-, (18aR)- (9CI)
MF C44 H44 N2 P2





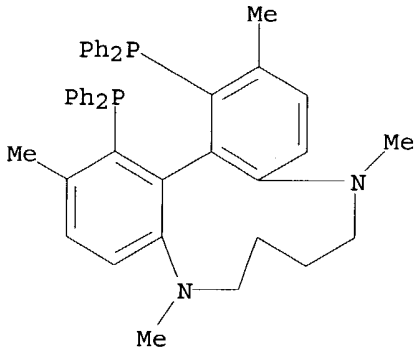
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, [(12aR)-6,7-dihydro-2,11-dimethyldibenzo[e,g][1,4]dioxocin-1,12-diyl]bis[diphenyl- (9CI)
MF C40 H34 O2 P2



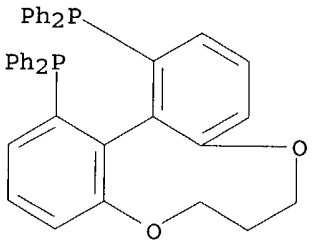
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Dibenzo[b,d][1,6]diazecine, 1,14-bis(diphenylphosphino)-5,6,7,8,9,10-hexahydro-2,5,10,13-tetramethyl-, (14aR)- (9CI)
MF C44 H44 N2 P2



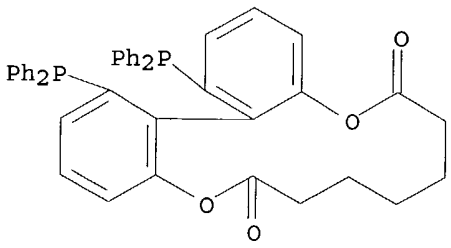
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, [(13aR)-7,8-dihydro-6H-dibenzo[f,h][1,5]dioxonin-1,13-diyl]bis[diphenyl- (9CI)
MF C39 H32 O2 P2



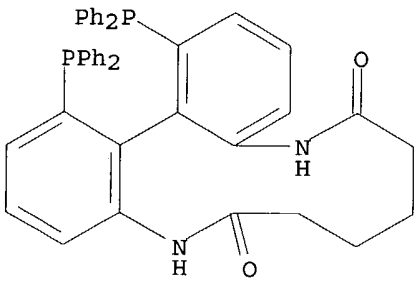
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN 6H-Dibenzo[b,d][1,6]dioxacyclotridecin-6,12(7H)-dione, 1,17-bis(diphenylphosphino)-8,9,10,11-tetrahydro-, (17aR)- (9CI)
MF C43 H36 O4 P2



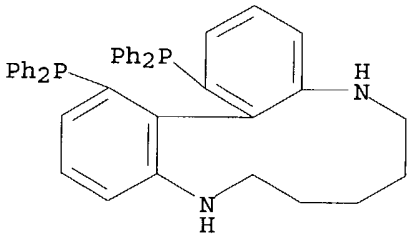
L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS

IN Dibenzo[b,d][1,6]diazacyclododecine-6,11-dione, 1,16-bis(diphenylphosphino)-5,7,8,9,10,12-hexahydro-, (16aR)- (9CI)
MF C42 H36 N2 O2 P2

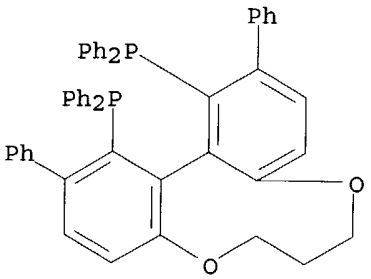


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, [(15aR)-6,7,8,9,10,11-hexahydro-5H-dibenzo[b,d][1,6]diazacycloundecine-1,15-diyl]bis[diphenyl- (9CI)
MF C41 H38 N2 P2



L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, [(13aR)-7,8-dihydro-2,12-diphenyl-6H-dibenzo[f,h][1,5]dioxonin-1,13-diyl]bis[diphenyl- (9CI)
MF C51 H40 O2 P2

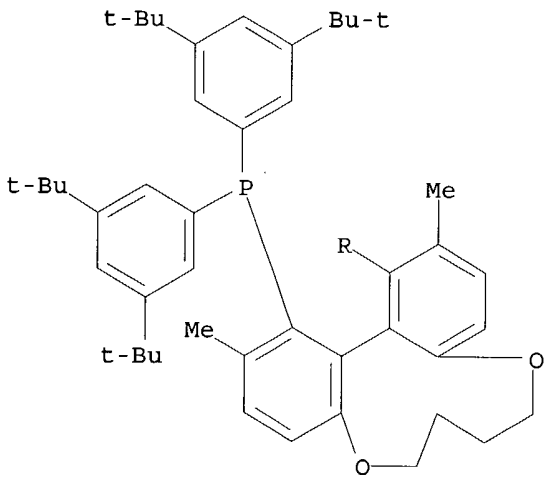


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

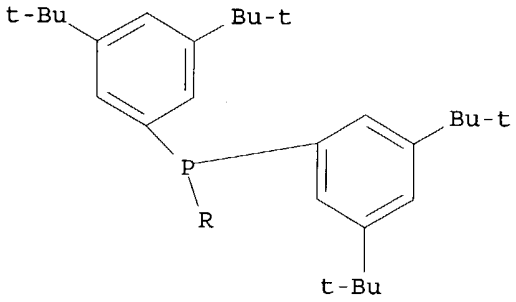
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):10

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, [(14aR)-6,7,8,9-tetrahydro-2,13-dimethyldibenzo[b,d][1,6]dioxecin-1,14-diyl]bis[bis[3,5-bis(1,1-dimethylethyl)phenyl]- (9CI)
MF C74 H102 O2 P2

PAGE 1-A

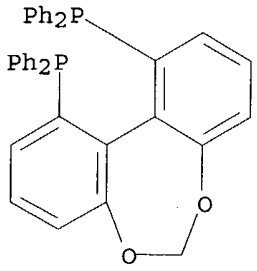


PAGE 2-A



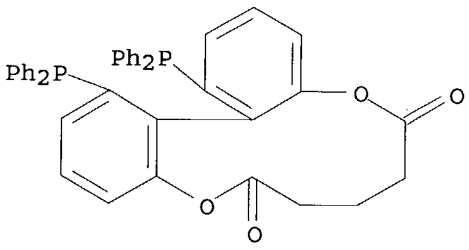
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, (11aR)-dibenzo[d,f][1,3]dioxepin-1,11-diylbis[diphenyl- (9CI)
MF C37 H28 O2 P2

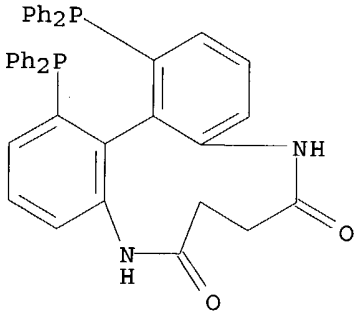


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN 6H-Dibenzo[b,d][1,6]dioxacycloundecin-6,10(7H)-dione, 1,15-bis(diphenylphosphino)-8,9-dihydro-, (15aR)- (9CI)
MF C41 H32 O4 P2

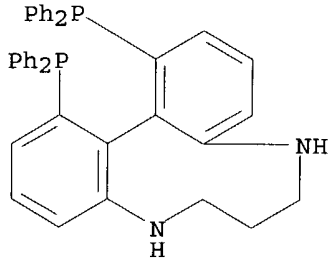


L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Dibenzo[b,d][1,6]diazecine-6,9-dione, 1,14-bis(diphenylphosphino)-5,7,8,10-tetrahydro-, (14aR)- (9CI)
MF C40 H32 N2 O2 P2



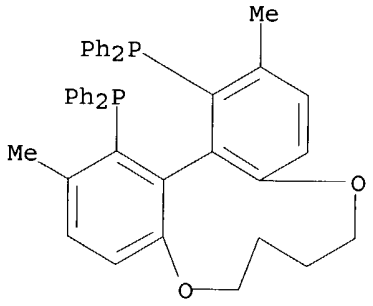
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN 5H-Dibenzo[f,h][1,5]diazonine, 1,13-bis(diphenylphosphino)-6,7,8,9-tetrahydro-, (13aR)- (9CI)
MF C39 H34 N2 P2



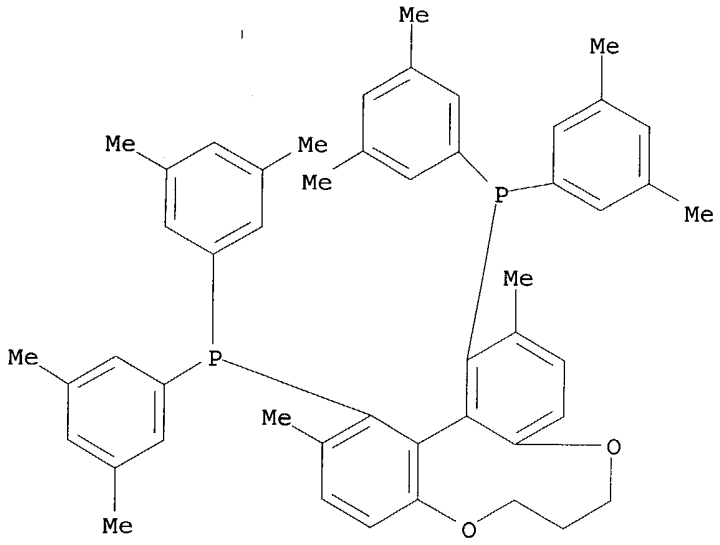
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, [(14aR)-6,7,8,9-tetrahydro-2,13-dimethyldibenzo[b,d][1,6]dioxecin-1,14-diyl]bis[diphenyl- (9CI)
MF C42 H38 O2 P2



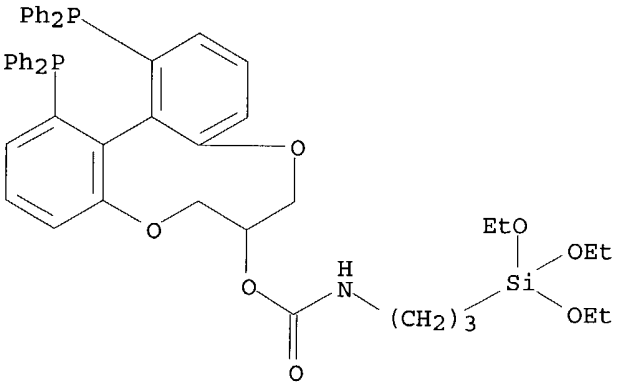
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, [(13aR)-7,8-dihydro-2,12-dimethyl-6H-dibenzo[f,h][1,5]dioxonin-1,13-diyl]bis[bis(3,5-dimethylphenyl)- (9CI)
MF C49 H52 O2 P2



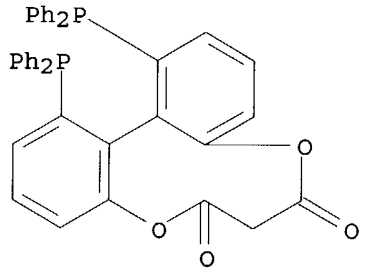
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Carbamic acid, [3-(triethoxysilyl)propyl]-, (13aR)-1,13-bis(diphenylphosphino)-7,8-dihydro-6H-dibenzo[f,h][1,5]dioxonin-7-yl ester (9CI)
MF C49 H53 N O7 P2 Si



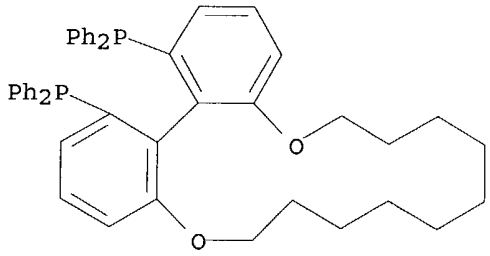
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN 6H-Dibenzo[f,h][1,5]dioxonin-6,8(7H)-dione, 1,13-bis(diphenylphosphino)-, (13aR)- (9CI)
MF C39 H28 O4 P2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

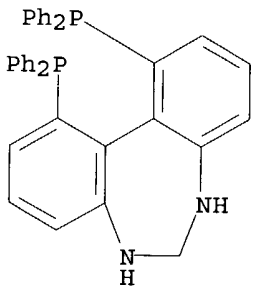
L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, [(20aR)-6,7,8,9,10,11,12,13,14,15-decahydrodibenzo[b,d][1,6]dioxacyclohexadecin-1,20-diyl]bis[diphenyl- (9CI)
MF C46 H46 O2 P2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

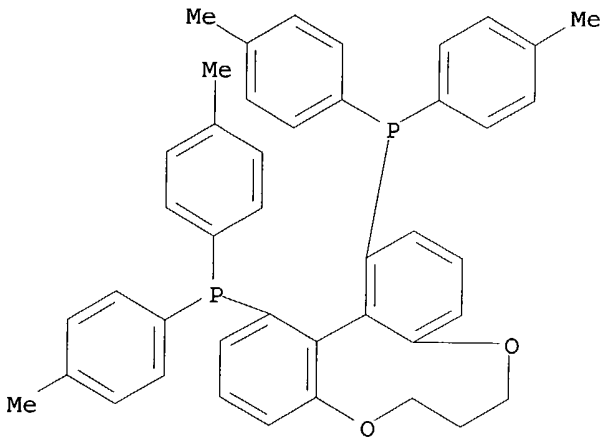
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):10

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN 5H-Dibenzo[d,f][1,3]diazepine, 1,11-bis(diphenylphosphino)-6,7-dihydro-, (11aR)- (9CI)
MF C37 H30 N2 P2



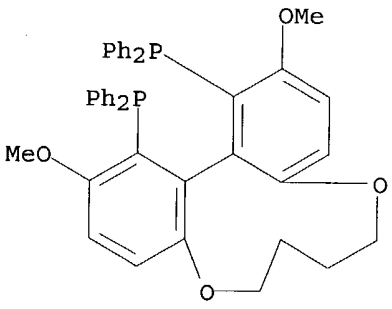
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, (7,8-dihydro-6H-dibenzo[f,h][1,5]dioxonin-1,13-diyl)bis[bis(4-methylphenyl)-, (-)- (9CI)
MF C43 H40 O2 P2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

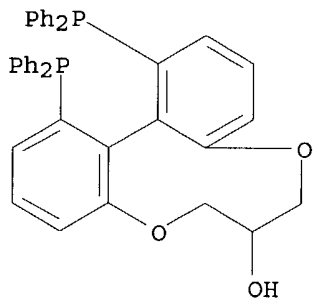
L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, [(14aR)-6,7,8,9-tetrahydro-2,13-dimethoxydibenzo[b,d][1,6]dioxecin-1,14-diyl]bis[diphenyl- (9CI)
MF C42 H38 O4 P2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

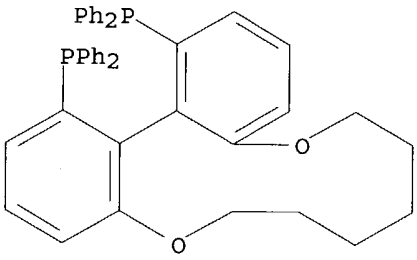
L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN 6H-Dibenzo[f,h][1,5]dioxonin-7-ol, 1,13-bis(diphenylphosphino)-7,8-dihydro-, (13aR)- (9CI)

MF C39 H32 O3 P2



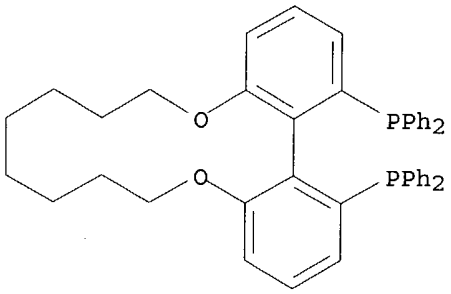
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, [(16aR)-6,7,8,9,10,11-hexahydrodibenzo[b,d][1,6]dioxacyclododec
in-1,16-diyl]bis[diphenyl- (9CI)
MF C42 H38 O2 P2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L11 56 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Dibenzo[b,d][1,6]dioxacyclotetradecin, 1,18-bis(diphenylphosphino)-
6,7,8,9,10,11,12,13-octahydro-, (18aR)- (9CI)
MF C44 H42 O2 P2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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=> s l13
L14           6 L13

=> d ibib abs hitstr 1-6

L14  ANSWER 1 OF 6  CAPLUS  COPYRIGHT 2003 ACS
ACCESSION NUMBER:         2002:539679  CAPLUS
DOCUMENT NUMBER:          137:109204
TITLE:                    Novel process for the synthesis of
                          5-(4-fluorophenyl)-1-[2-((2R,4R)-4-hydroxy-6-oxo-
                          tetrahydropyran-2-yl)-ethyl]-2-isopropyl-4-phenyl-1H-
                          pyrrole-3-carboxylic acid N-phenylamide
INVENTOR(S):              Butler, Donald Eugene; Dejong, Randall Lee; Nelson,
                          Jade Douglas; Pamment, Michael Gerard; Stuk, Timothy
                          Lee
PATENT ASSIGNEE(S):       Warner-Lambert Company, USA
SOURCE:                   PCT Int. Appl., 82 pp.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.        KIND  DATE          APPLICATION NO.  DATE
     ---------------   ----  --------      ---------------  --------
     WO 2002055519      A2   20020718      WO 2001-IB2729   20011227
     WO 2002055519      A3   20020919
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
             PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA,
             UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
             CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
             BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
     US 2002133026      A1   20020919      US 2001-15558    20011217
     US 6476235         B2   20021105
PRIORITY APPLN. INFO.:                    US 2001-260505P  P  20010109
GI
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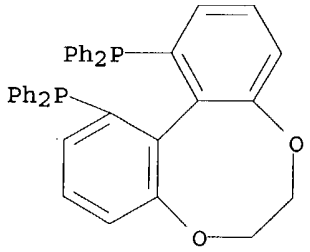
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB An improved process for the prepn. of 5-(4-fluorophenyl)-1-[2-((2R,4R)-4-hydroxy-6-oxo-tetrahydropyran-2-yl)ethyl]-2-isopropyl-4-phenyl-1H-pyrrole-3-carboxylic acid phenylamide (I) was disclosed. Morpholine was condensed with Me cyanoacetate (MTBE, 55.degree., 12-18 h), the product reduced to the amine (MeOH, HCl, H2-Pt/C @ 50 psi, 24 h), converted from the hydrochloride to the phenylacetate salt, which was condensed with 2-[2-(4-fluorophenyl)-2-oxo-1-phenylethyl]-4-methyl-3-oxopentanoic acid phenylamide with removal of water (THF, 4-8 mesh 3.ANG. ms, reflux, 24 h) to afford solid II. Et acetoacetate in THF was reacted with NaH at -20.degree. (held at -10.degree. 45 min) followed by n-BuLi at -18.degree. (held at -4.degree. for 90 min) followed by addn. of II at -25.degree. and held at -23.degree. for 20 h yielding, after aq. work-up, A-(CH2)2COCH2COCH2CO2Et (III). Redn. of III with a RuCl2(DMF)n[(+)-Cl-MeO-BIPHEP] complex (MeOH, 1M HBr, H2 @ 50 psi, 65.degree.) to afford .beta.,.delta.-dihydroxy ester IV in a 1:1.5 syn:anti with a .gtoreq.98% enantiomeric excess at the .delta.-hydroxy position in favor of the (R)-configuration (4 diastereomers sepd. by HPLC; Chiralcel-OD-H).

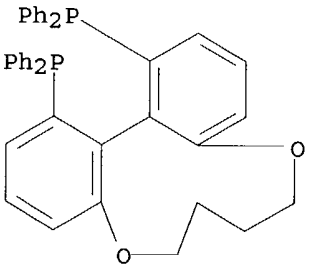
Cyclization/elimination of IV (MeOHaq, KOH, 85.degree.; PhMe, HCl; Ac2O, NEt3, DMAP) provides the 6-oxo-3,6-2H-pyran V (98% ee). Treatment of V with BnOH, NaOH at -10.degree. for 19 h followed by hydrogenation (PhMe, 20% Pd(OH)2/C, 50 psi, 50.degree., 16 h) provided VI as a white solid (anti:syn 99:1, enantiomeric excess at the pyran C5 of 99% favoring the (R)-configuration). Alternate methods for several steps were provided. Utilization of VI for the prepn. of atorvastatin calcium was also exemplified. Redn. of .beta.,.delta.-diketo esters reported herein is more stereoselective, can be executed at lower pressures and is more amendable to large-scale manufg. than prior art examples.

IT **301847-88-1D**, BIPHEP, BINAP and TunaPhos ruthenium complexes
301847-90-5D, BIPHEP, BINAP and TunaPhos ruthenium complexes
RL: CAT (Catalyst use); USES (Uses)
(stereoselective redn. of a .beta.,.delta.-diketo ester leading to 5-(4-fluorophenyl)-1-[2-((2R,4R)-4-hydroxy-6-oxo-tetrahydropyran-2-yl)-ethyl]-2-iso-Pr-4-Ph-1H-pyrrole-3-carboxylic acid N-phenylamide)

RN 301847-88-1 CAPLUS
CN Phosphine, [(12aR)-6,7-dihydrodibenzo[e,g][1,4]dioxocin-1,12-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)

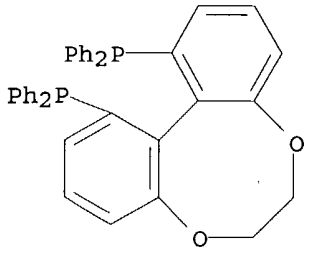


RN 301847-90-5 CAPLUS
CN Phosphine, [(14aR)-6,7,8,9-tetrahydrodibenzo[b,d][1,6]dioxecin-1,14-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)

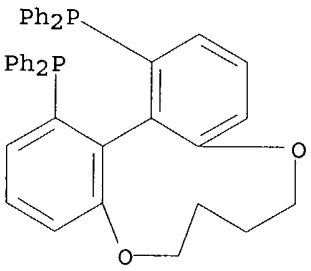


IT **301847-88-1 301847-90-5**
RL: RCT (Reactant); RACT (Reactant or reagent)
(stereoselective redn. of a .beta.,.delta.-diketo ester leading to 5-(4-fluorophenyl)-1-[2-((2R,4R)-4-hydroxy-6-oxo-tetrahydropyran-2-yl)-ethyl]-2-iso-Pr-4-Ph-1H-pyrrole-3-carboxylic acid N-phenylamide)

RN 301847-88-1 CAPLUS
CN Phosphine, [(12aR)-6,7-dihydrodibenzo[e,g][1,4]dioxocin-1,12-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



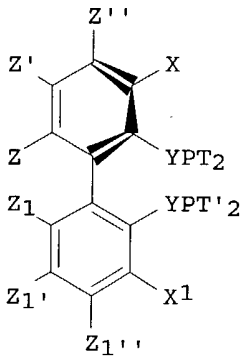
RN 301847-90-5 CAPLUS
CN Phosphine, [(14aR)-6,7,8,9-tetrahydrodibenzo[b,d][1,6]dioxecin-1,14-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



L14 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:391724 CAPLUS
DOCUMENT NUMBER: 136:401880
TITLE: Ortho substituted chiral phosphines and phosphinites and their use in asymmetric catalytic reactions
INVENTOR(S): Zhang, Xumu
PATENT ASSIGNEE(S): The Penn State Research Foundation, USA
SOURCE: PCT Int. Appl., 122 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002040491	A1	20020523	WO 2001-US43779	20011116
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002016719	A5	20020527	AU 2002-16719	20011116
US 2002128501	A1	20020912	US 2001-991261	20011116

PRIORITY APPLN. INFO.: US 2000-249537P P 20001117
US 2001-301221P P 20010627
WO 2001-US43779 W 20011116
OTHER SOURCE(S): CASREACT 136:401880; MARPAT 136:401880
GI



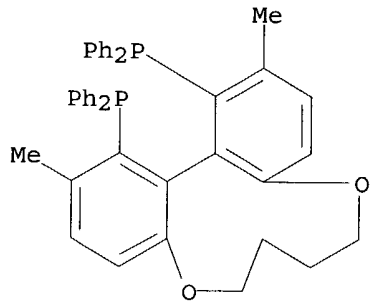
I

AB 3,3'-Substituted chiral biaryl phosphine and phosphinite ligands, I (X, X' = independently (un)substituted alkyl, (un)substituted aryl, alkoxy, organothio, diorganoamido, alkoxycarbonyl, halo, organosilyl, diorganophosphonyl, dialkoxyphosphino; Z, Z1 = independently (un)substituted alkyl, (un)substituted aryl, alkoxy, organothio, diorganoamido, alkoxycarbonyl, halo, organosilyl, diorganophosphonyl, dialkoxyphosphino, bridging group, etc.; Z', Z'', Z1', Z1'' = independently H, (un)substituted alkyl, (un)substituted aryl, alkoxy, organothio, diorganoamido, alkoxycarbonyl, halo, organosilyl, diorganophosphonyl, dialkoxyphosphino, bridging group, etc.; Y, Y' = O, CH2, NH, S, a bond between carbon and phosphorus, etc.; T, T' = (un)substituted alkyl, (un)substituted aryl, alkoxy, etc.) and metal complexes based on such chiral ligands useful in asym. catalysis are disclosed. The metal complexes are useful as catalysts in asym. reactions, such as, hydrogenation, hydride transfer, allylic alkylation, hydrosilylation, hydroboration, hydrovinylation, hydroformylation, hydroformylation, olefin metathesis, hydrocarboxylation, isomerization, cyclopropanation, Diels-Alder reaction, Heck reaction, isomerization, Aldol reaction, Michael addn., epoxidn., Kinetic resoln. and [m + n] cycloaddn. The metal complexes are particularly effective in Ru-catalyzed asym. hydrogenation of beta-ketoesters to beta-hydroxyesters and Ru-catalyzed asym. hydrogenation of enamides to beta amino acids. Thus, (R)-3,3'-diphenyl-2,2'-bis(diphenylphosphinoxy)-1,1'-binaphthyl was prepd. in five steps starting from (R)-BINOL.

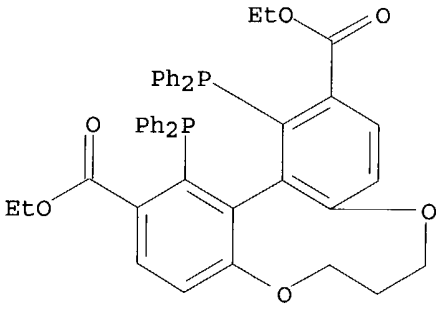
IT **428877-93-4P 428877-94-5P 428877-95-6P**
428877-96-7P 428877-97-8P 428878-00-6P
428878-01-7P 428878-02-8P 428878-03-9P
428878-04-0P 428878-05-1P 428878-06-2P
428878-07-3P 428878-08-4P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(prepn. of ortho substituted chiral phosphines and phosphinites and their use in asym. catalytic reactions)

RN 428877-93-4 CAPLUS

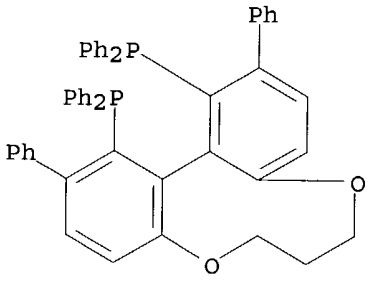
CN Phosphine, [(14aR)-6,7,8,9-tetrahydro-2,13-dimethyldibenzo[b,d][1,6]dioxecin-1,14-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



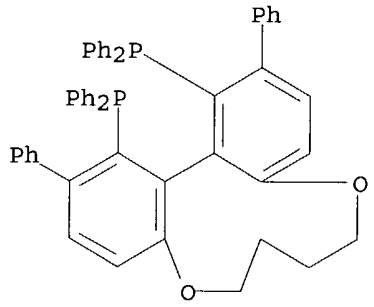
RN 428877-94-5 CAPLUS
CN 6H-Dibenzo[f,h][1,5]dioxonin-2,12-dicarboxylic acid, 1,13-bis(diphenylphosphino)-7,8-dihydro-, diethyl ester, (13aR)- (9CI) (CA INDEX NAME)



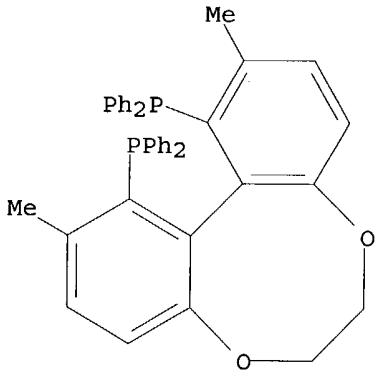
RN 428877-95-6 CAPLUS
CN Phosphine, [(13aR)-7,8-dihydro-2,12-diphenyl-6H-dibenzo[f,h][1,5]dioxonin-1,13-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



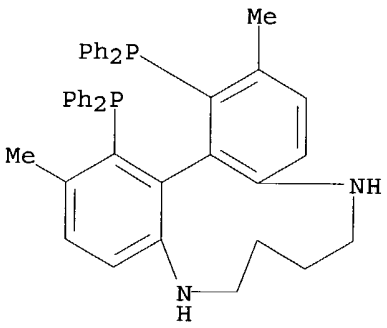
RN 428877-96-7 CAPLUS
CN Phosphine, [(14aR)-6,7,8,9-tetrahydro-2,13-diphenyldibenzo[b,d][1,6]dioxecin-1,14-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



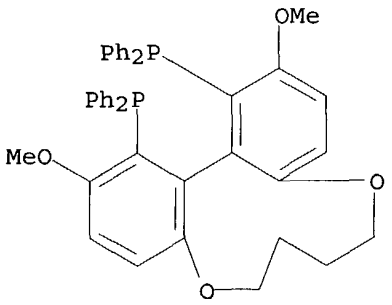
RN 428877-97-8 CAPLUS
CN Phosphine, [(12aR)-6,7-dihydro-2,11-dimethyldibenzo[e,g][1,4]dioxocin-1,12-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



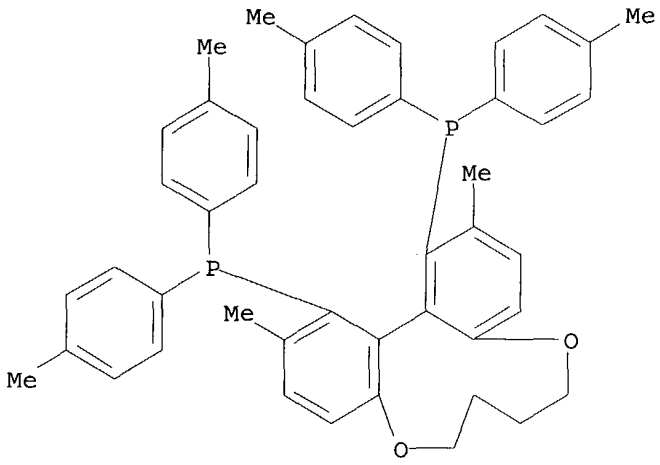
RN 428878-00-6 CAPLUS
CN Dibenzo[b,d][1,6]diazecine, 1,14-bis(diphenylphosphino)-5,6,7,8,9,10-hexahydro-2,13-dimethyl-, (14aR)- (9CI) (CA INDEX NAME)



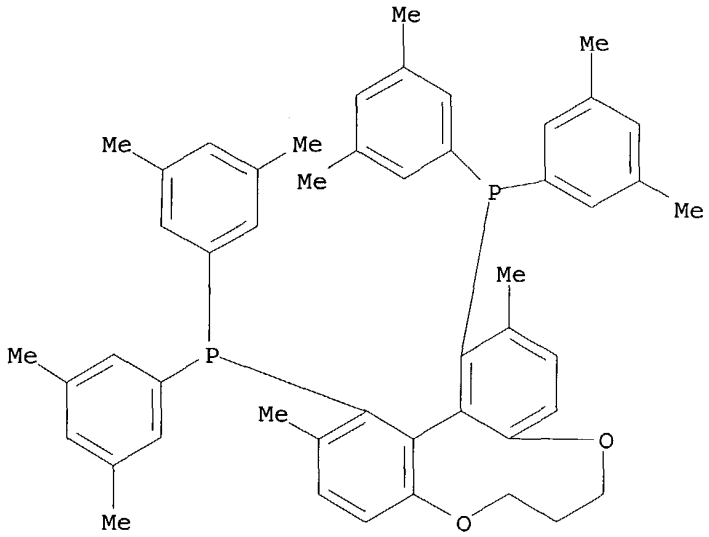
RN 428878-01-7 CAPLUS
CN Phosphine, [(14aR)-6,7,8,9-tetrahydro-2,13-dimethoxydibenzo[b,d][1,6]dioxecin-1,14-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



RN 428878-02-8 CAPLUS
CN Phosphine, [(14aR)-6,7,8,9-tetrahydro-2,13-dimethyldibenzo[b,d][1,6]dioxecin-1,14-diyl]bis[bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

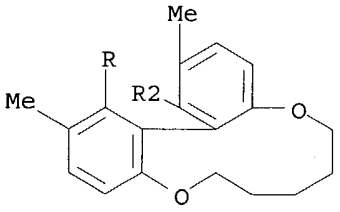


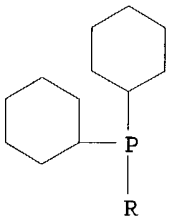
RN 428878-03-9 CAPLUS
CN Phosphine, [(13aR)-7,8-dihydro-2,12-dimethyl-6H-dibenzo[f,h][1,5]dioxonin-1,13-diyl]bis[bis(3,5-dimethylphenyl)- (9CI) (CA INDEX NAME)



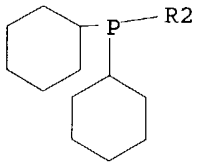
RN 428878-04-0 CAPLUS
CN Phosphine, [(15aR)-7,8,9,10-tetrahydro-2,14-dimethyl-6H-dibenzo[b,d][1,6]dioxacycloundecin-1,15-diyl]bis[dicylohexyl- (9CI) (CA INDEX NAME)

PAGE 1-A



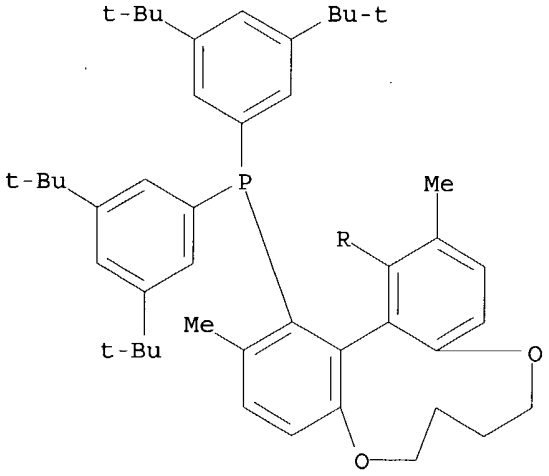


PAGE 2-A

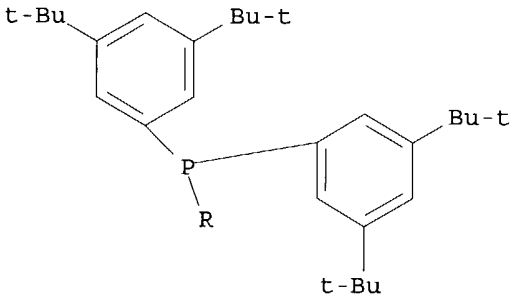


RN 428878-05-1 CAPLUS
CN Phosphine, [(14aR)-6,7,8,9-tetrahydro-2,13-dimethyldibenzo[b,d][1,6]dioxecin-1,14-diyl]bis[bis[3,5-bis(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)

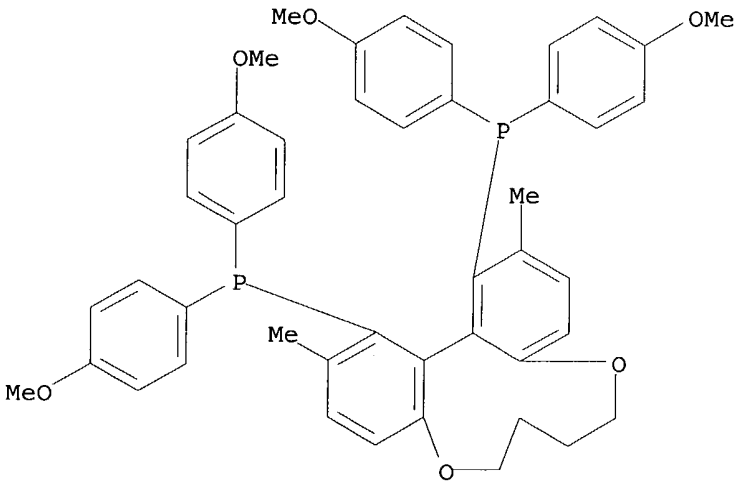
PAGE 1-A



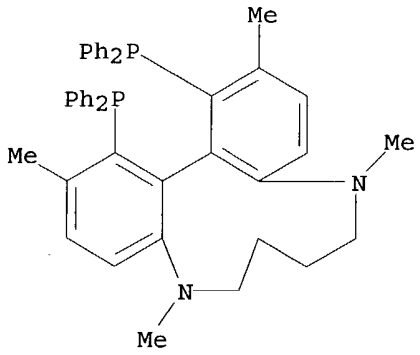
PAGE 2-A



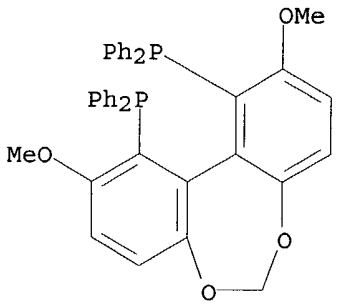
RN 428878-06-2 CAPLUS
CN Phosphine, [(14aR)-6,7,8,9-tetrahydro-2,13-dimethyldibenzo[b,d][1,6]dioxecin-1,14-diyl]bis[bis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



RN 428878-07-3 CAPLUS
CN Dibenzo[b,d][1,6]diazecine, 1,14-bis(diphenylphosphino)-5,6,7,8,9,10-hexahydro-2,5,10,13-tetramethyl-, (14aR)- (9CI) (CA INDEX NAME)



RN 428878-08-4 CAPLUS
CN Phosphine, [(11aR)-2,10-dimethoxydibenzo[d,f][1,3]dioxepin-1,11-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:597876 CAPLUS
DOCUMENT NUMBER: 135:180880
TITLE: Chiral ferrocene phosphines and their use in asymmetric catalytic reactions
INVENTOR(S): Zhang, Xumu
PATENT ASSIGNEE(S): The Penn State Research Foundation, USA
SOURCE: PCT Int. Appl., 107 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001058588	A1	20010816	WO 2001-US4442	20010209

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,

SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 2002091280	A1	20020711	US 2001-781083	20010209
EP 1257360	A1	20021120	EP 2001-909127	20010209

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

PRIORITY APPLN. INFO.: US 2000-181448P P 20000210
US 2000-214167P P 20000626
WO 2001-US4442 W 20010209

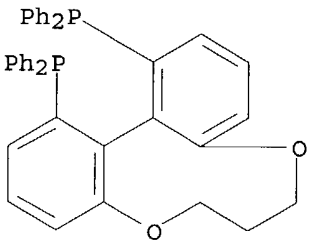
OTHER SOURCE(S): CASREACT 135:180880; MARPAT 135:180880

AB Metal complexes with ferrocene anchored chiral ligands are useful in asym. catalysis, such as hydrogenation and allylic alkylation. Thus, (S,S,S,S)ferrocene amide phosphine was prepd. from (1S,2S)-diaminocyclohexane and chiral carboxyferrocenyl di-Ph phosphine and used in combination with (.eta.3-allyl)PdCl2 to catalysis allylic alkylation between 2-cyclohexenyl acetate and di-Me malonate to give [(1R)-2-cyclohexen-1-yl]propanedioic acid di-Me ester in 61% and 20% ee (R).

IT **301847-89-2**
RL: CAT (Catalyst use); USES (Uses)
(chiral ferrocene phosphines for asym. alkylation reaction catalysis)

RN 301847-89-2 CAPLUS

CN Phosphine, [(13aR)-7,8-dihydro-6H-dibenzo[f,h][1,5]dioxonin-1,13-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2003 ACS

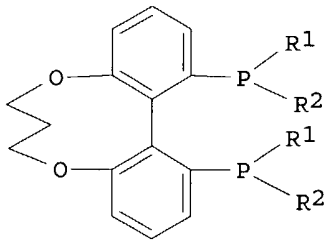
ACCESSION NUMBER: 2001:319498 CAPLUS
DOCUMENT NUMBER: 134:326631
TITLE: Optically active diphosphine compound, production intermediates therefor, transition metal complex containing the compound as ligand and asymmetric hydrogenation catalyst containing the complex
INVENTOR(S): Yokozawa, Tohru; Sayo, Noboru; Saito, Takao; Ishizaki, Takero
PATENT ASSIGNEE(S): Takasago International Corporation, Japan
SOURCE: Eur. Pat. Appl., 19 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1095946	A1	20010502	EP 2000-402997	20001027

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

JP 2001131192	A2	20010515	JP 1999-309976	19991029
US 6333291	B1	20011225	US 2000-698208	20001030

PRIORITY APPLN. INFO.: JP 1999-309976 A 19991029
OTHER SOURCE(S): MARPAT 134:326631
GI

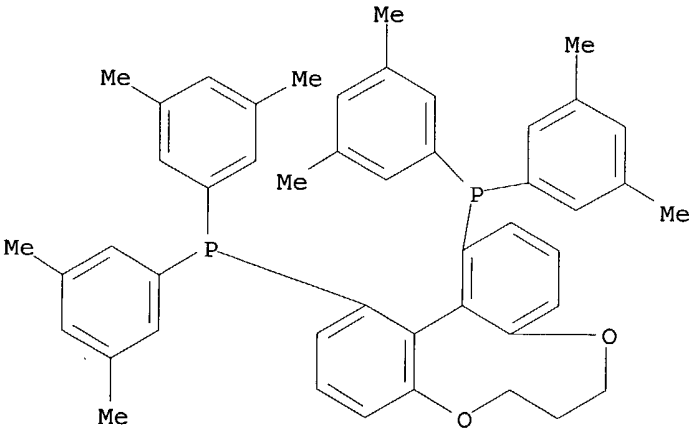


I

AB This invention provides a novel diphosphine compd. which is useful as a ligand of catalysts for asym. synthesis reactions, particularly asym. hydrogenation reaction. Particularly, it provides a diphosphine compd. I (R1, R2 = each independently represents a cycloalkyl group, an unsubstituted or substituted Ph group or a five-membered arom. heterocycle residue). Thus, reaction of I (L, R1 = R2 = Ph), prepd. in 5 steps starting from 3-bromophenol, with [Ru(p-cymene)I2]2 gave [RuI(p-cymene)(L)] which was used as catalyst for asym. hydrogenation of Me benzoylacetate.

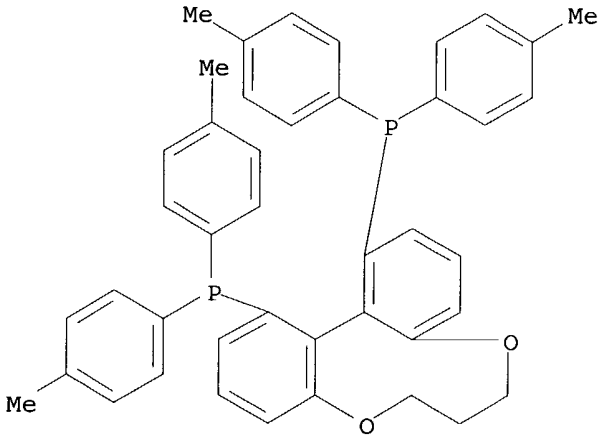
IT **337359-59-8P 337359-61-2P 337359-92-9P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(ruthenium complex with optically active diphosphine ligand catalyzed asym. hydrogenation of)

RN 337359-59-8 CAPLUS
CN Phosphine, (7,8-dihydro-6H-dibenzo[f,h][1,5]dioxonin-1,13-diyl)bis[bis(3,5-dimethylphenyl)-, (-)- (9CI) (CA INDEX NAME)

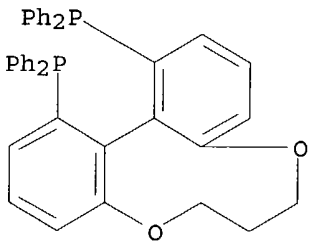


RN 337359-61-2 CAPLUS
CN Phosphine, (7,8-dihydro-6H-dibenzo[f,h][1,5]dioxonin-1,13-diyl)bis[bis(4-

methylphenyl)-, (-)- (9CI) (CA INDEX NAME)



RN 337359-92-9 CAPLUS
CN Phosphine, (7,8-dihydro-6H-dibenzo[f,h][1,5]dioxonin-1,13-diyl)bis[diphenyl-, (-)- (9CI) (CA INDEX NAME)



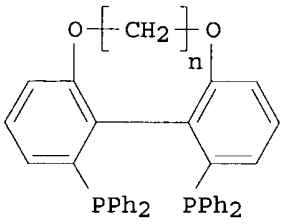
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:228894 CAPLUS
DOCUMENT NUMBER: 134:266437
TITLE: Chiral phosphines, transition metal complexes thereof and uses thereof in asymmetric reactions
INVENTOR(S): Zhang, Xumu
PATENT ASSIGNEE(S): Penn State Research Foundation, USA
SOURCE: PCT Int. Appl., 52 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001021625	A1	20010329	WO 2000-US25635	20000919

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN,

YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
EP 1214328 A1 20020619 EP 2000-965136 20000919
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL
PRIORITY APPLN. INFO.: US 1999-154845P P 19990920
WO 2000-US25635 W 20000919
OTHER SOURCE(S): CASREACT 134:266437; MARPAT 134:266437
GI



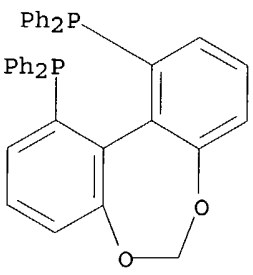
I

AB Chiral ligands and transition metal complexes based on such chiral ligands useful in asym. catalysis are disclosed. The chiral ligands include chiral C1-C6-TunaPhos ligands I (n = 1-6). The ruthenium TunaPhos complex reduces ketones to the corresponding alcs. with 95-99.6 % enantioselectivity. The transition metal complexes of the chiral ligands are useful in asym. reactions such as asym. hydrogenation, hydride transfer, hydrosilylation, hydroboration, hydrovinylation, hydroformylation, hydrocarboxylation, isomerization, allylic alkylation, cyclopropanation, Diels-Alder reaction, Heck reaction, isomerization, Aldol reaction, Michael addn. and epoxidn. reactions.

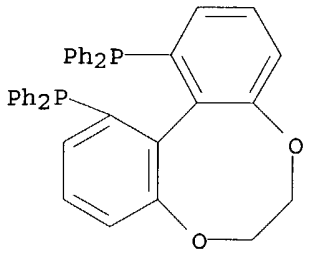
IT **301847-87-0P**, (R)-C1-TunaPhos **301847-88-1P**, (R)-C2-TunaPhos **301847-89-2P**, (R)-C3-TunaPhos **301847-90-5P**, (R)-C4-TunaPhos **301847-91-6P**, (R)-C5-TunaPhos **301847-92-7P**, (R)-C6-TunaPhos
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(prepn. as cocatalyst in transition metal complex catalyzed asym. reactions)

RN 301847-87-0 CAPLUS

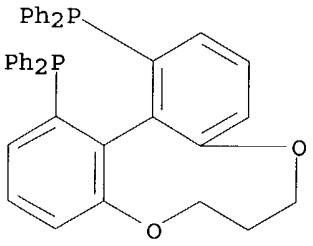
CN Phosphine, (11aR)-dibenzo[d,f][1,3]dioxepin-1,11-diylbis[diphenyl- (9CI) (CA INDEX NAME)



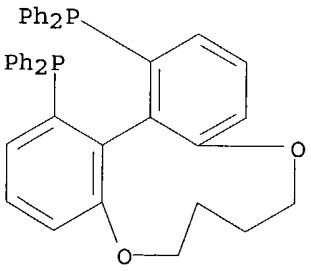
RN 301847-88-1 CAPLUS
CN Phosphine, [(12aR)-6,7-dihydrodibenzo[e,g][1,4]dioxocin-1,12-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



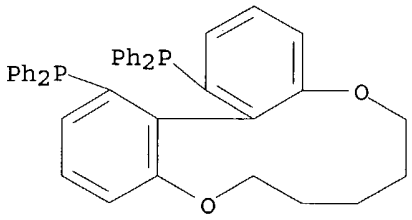
RN 301847-89-2 CAPLUS
CN Phosphine, [(13aR)-7,8-dihydro-6H-dibenzo[f,h][1,5]dioxonin-1,13-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



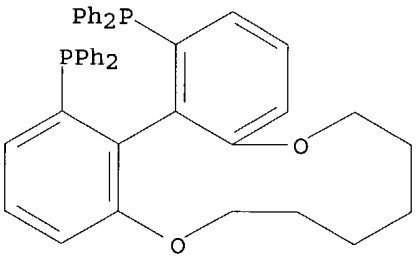
RN 301847-90-5 CAPLUS
CN Phosphine, [(14aR)-6,7,8,9-tetrahydrodibenzo[b,d][1,6]dioxecin-1,14-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



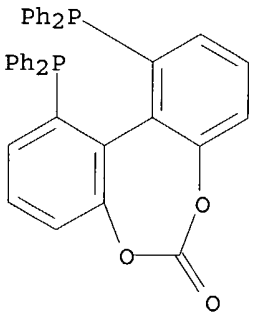
RN 301847-91-6 CAPLUS
CN Phosphine, [(15aR)-7,8,9,10-tetrahydro-6H-dibenzo[b,d][1,6]dioxacycloundecin-1,15-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



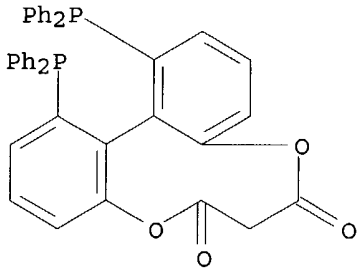
RN 301847-92-7 CAPLUS
CN Phosphine, [(16aR)-6,7,8,9,10,11-hexahydrodibenzo[b,d][1,6]dioxacyclododec in-1,16-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



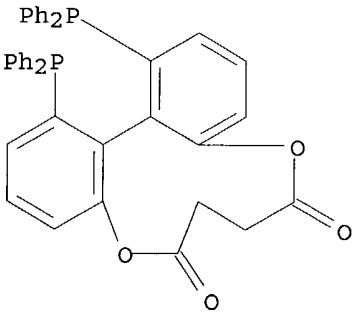
IT **331768-59-3 331768-62-8 331768-63-9**
331768-64-0 331768-65-1 331768-66-2
331768-67-3 331768-68-4 331768-69-5
331768-70-8 331768-71-9 331769-04-1
331769-05-2 331769-06-3 331769-07-4
331769-08-5 331769-09-6 331769-13-2
331769-15-4 331769-16-5 331769-17-6
331769-18-7 331769-19-8 331769-20-1
331769-21-2 331769-22-3 331776-92-2
RL: CAT (Catalyst use); USES (Uses)
(prepn. of chiral diphosphines as cocatalyst in transition metal complex catalyzed asym. reactions)
RN 331768-59-3 CAPLUS
CN Dibenzo[d,f][1,3]dioxepin-6-one, 1,11-bis(diphenylphosphino)-, (11aR)- (9CI) (CA INDEX NAME)



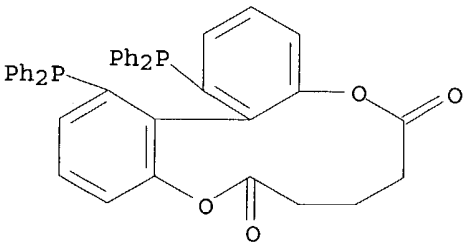
RN 331768-62-8 CAPLUS
CN 6H-Dibenzo[f,h][1,5]dioxonin-6,8(7H)-dione, 1,13-bis(diphenylphosphino)-, (13aR)- (9CI) (CA INDEX NAME)



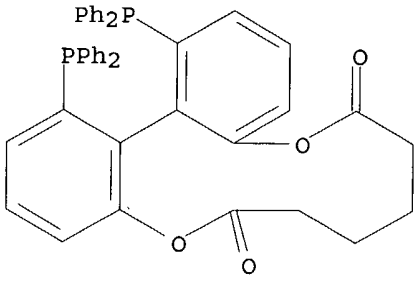
RN 331768-63-9 CAPLUS
CN Dibenzo[b,d][1,6]dioxecin-6,9-dione, 1,14-bis(diphenylphosphino)-7,8-dihydro-, (14aR)- (9CI) (CA INDEX NAME)

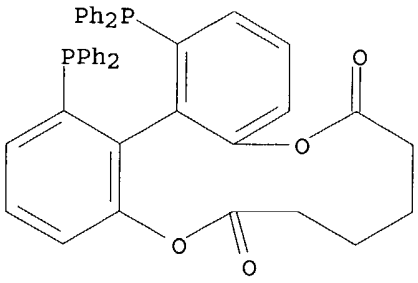


RN 331768-64-0 CAPLUS
CN 6H-Dibenzo[b,d][1,6]dioxacycloundecin-6,10(7H)-dione, 1,15-bis(diphenylphosphino)-8,9-dihydro-, (15aR)- (9CI) (CA INDEX NAME)

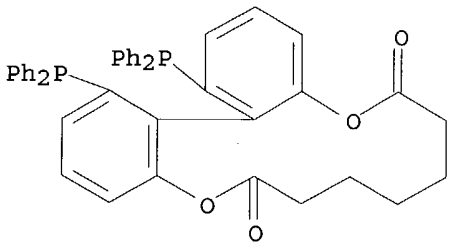


RN 331768-65-1 CAPLUS
CN Dibenzo[b,d][1,6]dioxacyclododecin-6,11-dione, 1,16-bis(diphenylphosphino)-7,8,9,10-tetrahydro-, (16aR)- (9CI) (CA INDEX NAME)

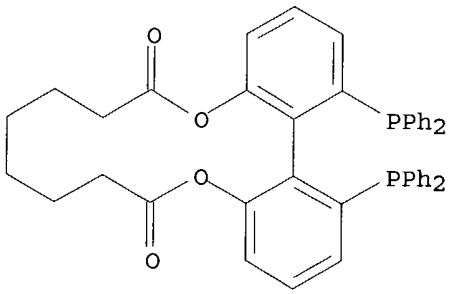




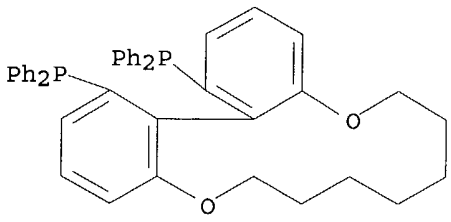
RN 331768-66-2 CAPLUS
CN 6H-Dibenzo[b,d][1,6]dioxacyclotridecin-6,12(7H)-dione, 1,17-bis(diphenylphosphino)-8,9,10,11-tetrahydro-, (17aR)- (9CI) (CA INDEX NAME)



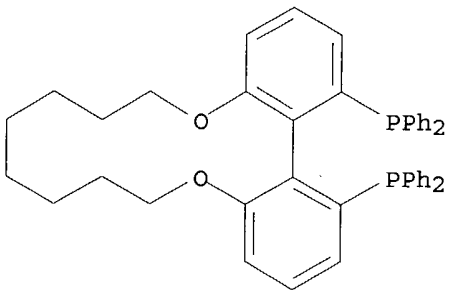
RN 331768-67-3 CAPLUS
CN Dibenzo[b,d][1,6]dioxacyclotetradecin-6,13-dione, 1,18-bis(diphenylphosphino)-7,8,9,10,11,12-hexahydro-, (18aR)- (9CI) (CA INDEX NAME)



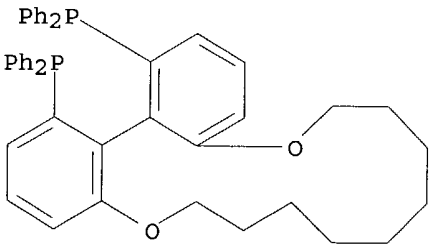
RN 331768-68-4 CAPLUS
CN Phosphine, [(17aR)-7,8,9,10,11,12-hexahydro-6H-dibenzo[b,d][1,6]dioxacyclotridecin-1,17-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



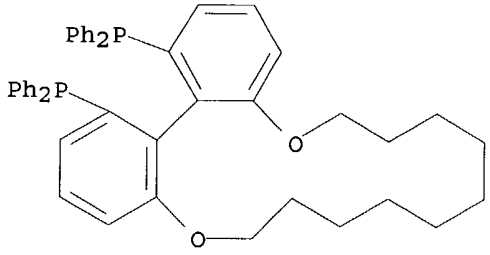
RN 331768-69-5 CAPLUS
CN Dibenzo[b,d][1,6]dioxacyclotetradecin, 1,18-bis(diphenylphosphino)-6,7,8,9,10,11,12,13-octahydro-, (18aR)- (9CI) (CA INDEX NAME)



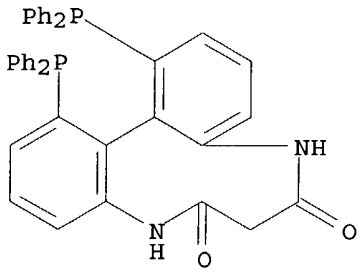
RN 331768-70-8 CAPLUS
CN Phosphine, [(19aR)-7,8,9,10,11,12,13,14-octahydro-6H-dibenzo[b,d][1,6]dioxacyclopentadecin-1,19-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



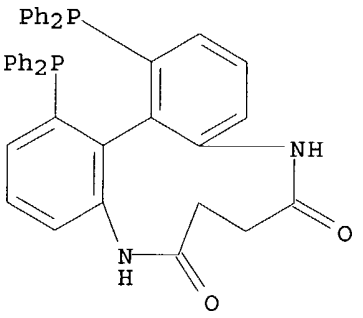
RN 331768-71-9 CAPLUS
CN Phosphine, [(20aR)-6,7,8,9,10,11,12,13,14,15-decahydrodibenzo[b,d][1,6]dioxacyclohexadecin-1,20-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



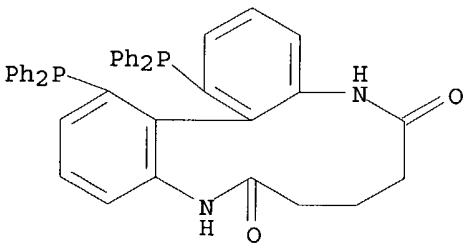
RN 331769-04-1 CAPLUS
CN 6H-Dibenzo[f,h][1,5]diazonine-6,8(7H)-dione, 1,13-bis(diphenylphosphino)-5,9-dihydro-, (13aR)- (9CI) (CA INDEX NAME)



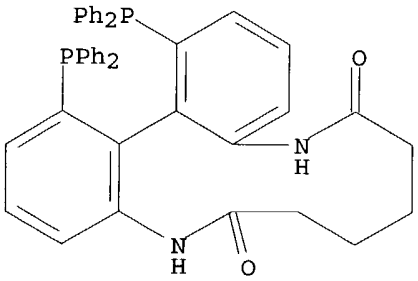
RN 331769-05-2 CAPLUS
CN Dibenzo[b,d][1,6]diazecine-6,9-dione, 1,14-bis(diphenylphosphino)-5,7,8,10-tetrahydro-, (14aR)- (9CI) (CA INDEX NAME)



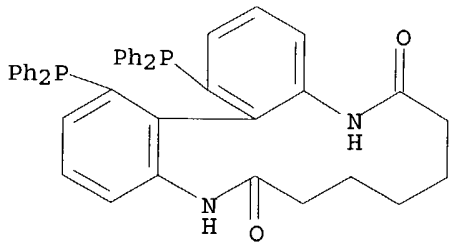
RN 331769-06-3 CAPLUS
CN 5H-Dibenzo[b,d][1,6]diazacycloundecine-6,10(7H,11H)-dione, 1,15-bis(diphenylphosphino)-8,9-dihydro-, (15aR)- (9CI) (CA INDEX NAME)



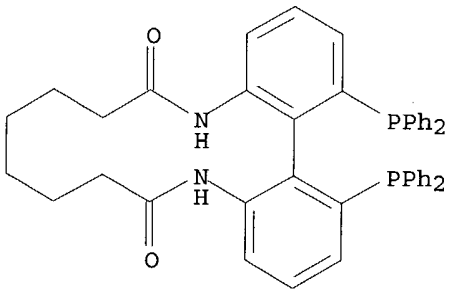
RN 331769-07-4 CAPLUS
CN Dibenzo[b,d][1,6]diazacyclododecine-6,11-dione, 1,16-bis(diphenylphosphino)-5,7,8,9,10,12-hexahydro-, (16aR)- (9CI) (CA INDEX NAME)



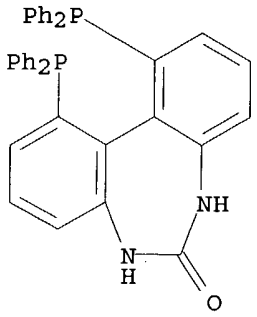
RN 331769-08-5 CAPLUS
CN 5H-Dibenzo[b,d][1,6]diazacyclotridecine-6,12(7H,13H)-dione, 1,17-bis(diphenylphosphino)-8,9,10,11-tetrahydro-, (17aR)- (9CI) (CA INDEX NAME)



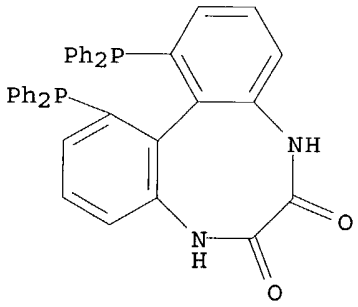
RN 331769-09-6 CAPLUS
CN Dibenzo[b,d][1,6]diazacyclotetradecine-6,13-dione, 1,18-bis(diphenylphosphino)-5,7,8,9,10,11,12,14-octahydro-, (18aR)- (9CI) (CA INDEX NAME)



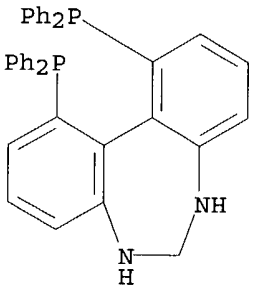
RN 331769-13-2 CAPLUS
CN 6H-Dibenzo[d,f][1,3]diazepin-6-one, 1,11-bis(diphenylphosphino)-5,7-dihydro-, (11aR)- (9CI) (CA INDEX NAME)



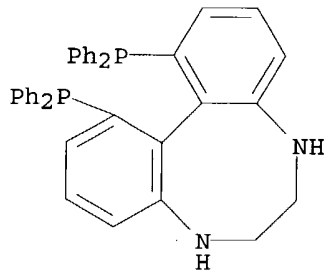
RN 331769-15-4 CAPLUS
CN Dibenzo[e,g][1,4]diazocine-6,7-dione, 1,12-bis(diphenylphosphino)-5,8-dihydro-, (12aR)- (9CI) (CA INDEX NAME)



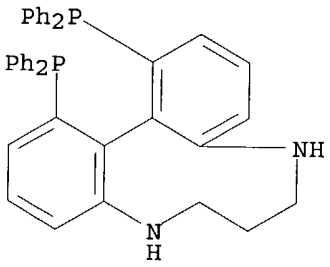
RN 331769-16-5 CAPLUS
CN 5H-Dibenzo[d,f][1,3]diazepine, 1,11-bis(diphenylphosphino)-6,7-dihydro-, (11aR)- (9CI) (CA INDEX NAME)



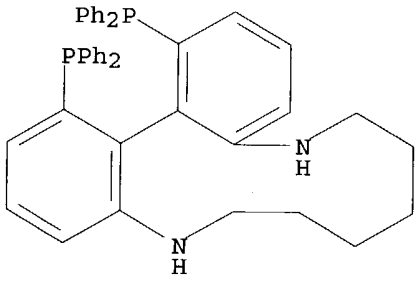
RN 331769-17-6 CAPLUS
CN Dibenzo[e,g][1,4]diazocine, 1,12-bis(diphenylphosphino)-5,6,7,8-tetrahydro-, (12aR)- (9CI) (CA INDEX NAME)



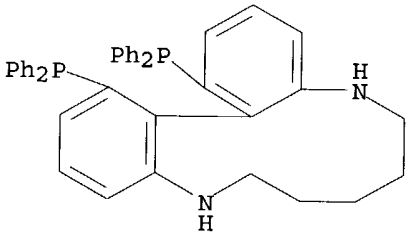
RN 331769-18-7 CAPLUS
CN 5H-Dibenzo[f,h][1,5]diazonine, 1,13-bis(diphenylphosphino)-6,7,8,9-tetrahydro-, (13aR)- (9CI) (CA INDEX NAME)



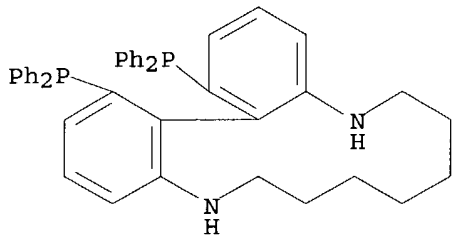
RN 331769-19-8 CAPLUS
CN Dibenzo[b,d][1,6]diazacyclododecine, 1,16-bis(diphenylphosphino)-5,6,7,8,9,10,11,12-octahydro-, (16aR)- (9CI) (CA INDEX NAME)



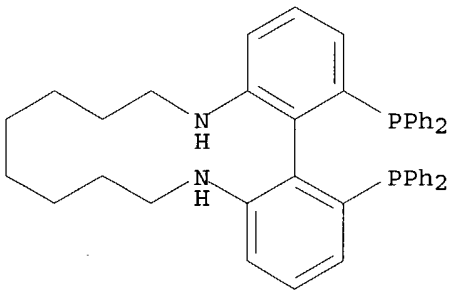
RN 331769-20-1 CAPLUS
CN Phosphine, [(15aR)-6,7,8,9,10,11-hexahydro-5H-dibenzo[b,d][1,6]diazacycloundecine-1,15-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



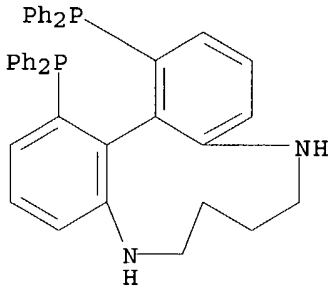
RN 331769-21-2 CAPLUS
CN 5H-Dibenzo[b,d][1,6]diazacyclotridecine, 1,17-bis(diphenylphosphino)-6,7,8,9,10,11,12,13-octahydro-, (17aR)- (9CI) (CA INDEX NAME)



RN 331769-22-3 CAPLUS
CN Dibenzo[b,d][1,6]diazacyclotetradecine, 1,18-bis(diphenylphosphino)-5,6,7,8,9,10,11,12,13,14-decahydro-, (18aR)- (9CI) (CA INDEX NAME)



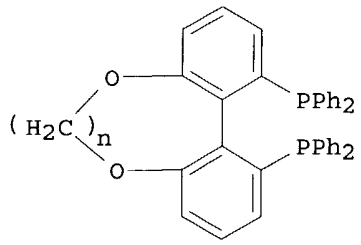
RN 331776-92-2 CAPLUS
CN Dibenzo[b,d][1,6]diazecine, 1,14-bis(diphenylphosphino)-5,6,7,8,9,10-hexahydro-, (14aR)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:574233 CAPLUS
DOCUMENT NUMBER: 133:309942
TITLE: Synthesis of Chiral Bisphosphines with Tunable Bite Angles and Their Applications in Asymmetric Hydrogenation of .beta.-Ketoesters

AUTHOR(S): Zhang, Zhaoguo; Qian, Hu; Longmire, James; Zhang, Xumu
CORPORATE SOURCE: Department of Chemistry, The Pennsylvania State University, University Park, PA, 16802, USA
SOURCE: Journal of Organic Chemistry (2000), 65(19), 6223-6226
CODEN: JOCEAH; ISSN: 0022-3263
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 133:309942
GI

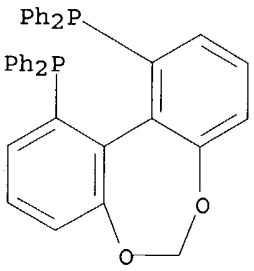


I

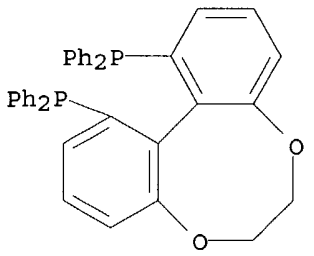
AB A series of chiral bisphosphines I (n = 1-6) with tunable dihedral angles were prepd. for the first time and used for Ru-catalyzed asym. hydrogenation of .beta.-ketoesters. Enantioselectivities with the Ru-I (n = 4) catalyst are comparable or better than those obsd. with Ru-BINAP and Ru-MeO-BIPHEP complexes, while enantioselectivities in asym. hydrogenation of .beta.-ketoesters are low with other catalysts e.g., Ru-I (n = 1, 6). The current study demonstrates the concept that changes in ligand dihedral angles indeed cause significant variations of enantioselectivity.

IT **301847-87-0P 301847-88-1P 301847-89-2P**
301847-90-5P 301847-91-6P 301847-92-7P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis of chiral bisphosphines with tunable bite angles and applications in asym. hydrogenation of beta-ketoesters)

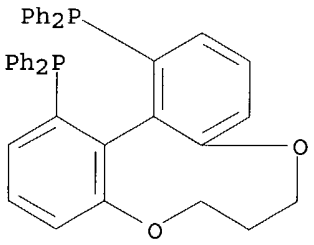
RN 301847-87-0 CAPLUS
CN Phosphine, (11aR)-dibenzo[d,f][1,3]dioxepin-1,11-diylbis[diphenyl- (9CI) (CA INDEX NAME)



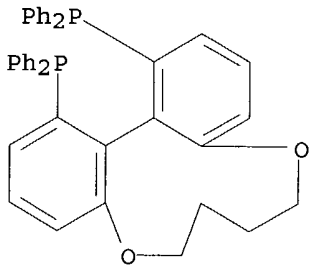
RN 301847-88-1 CAPLUS
CN Phosphine, [(12aR)-6,7-dihydrodibenzo[e,g][1,4]dioxocin-1,12-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



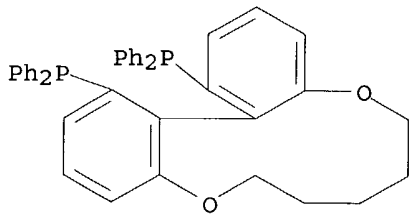
RN 301847-89-2 CAPLUS
CN Phosphine, [(13aR)-7,8-dihydro-6H-dibenzo[f,h][1,5]dioxonin-1,13-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



RN 301847-90-5 CAPLUS
CN Phosphine, [(14aR)-6,7,8,9-tetrahydrodibenzo[b,d][1,6]dioxecin-1,14-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)

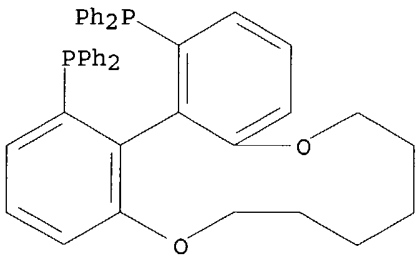


RN 301847-91-6 CAPLUS
CN Phosphine, [(15aR)-7,8,9,10-tetrahydro-6H-dibenzo[b,d][1,6]dioxacycloundecin-1,15-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



RN 301847-92-7 CAPLUS

CN Phosphine, [(16aR)-6,7,8,9,10,11-hexahydrodibenzo[b,d][1,6]dioxacyclododecin-1,16-diyl]bis[diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> file reg

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	28.47	458.34

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-3.91	-10.42

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USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 30 JAN 2003 HIGHEST RN 483965-49-7
DICTIONARY FILE UPDATES: 30 JAN 2003 HIGHEST RN 483965-49-7

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when conducting SmartSELECT searches.

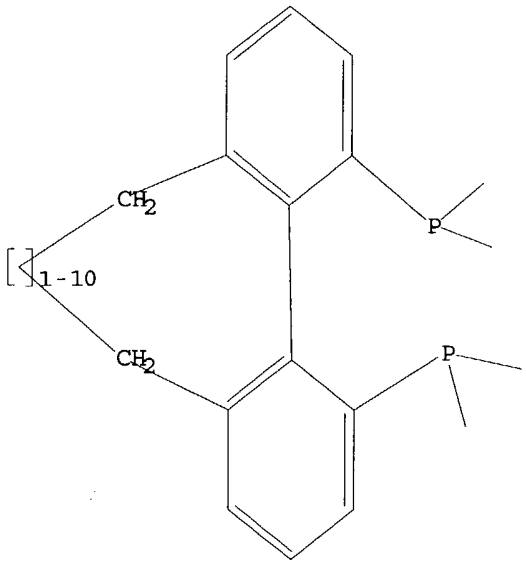
Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details:
http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf

=>
Uploading 09991261.str

L15 STRUCTURE UPLOADED

=> d
L15 HAS NO ANSWERS
L15 STR



G1 O,N

Structure attributes must be viewed using STN Express query preparation.

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SAMPLE SCREEN SEARCH COMPLETED -      7 TO ITERATE

100.0% PROCESSED       7 ITERATIONS                                0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:            7 TO      298
PROJECTED ANSWERS:               0 TO        0

L16            0 SEA SSS SAM L15

=> s l15 full
FULL SEARCH INITIATED 16:15:10 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -    154 TO ITERATE

100.0% PROCESSED     154 ITERATIONS                                0 ANSWERS
SEARCH TIME: 00.00.01

L17            0 SEA SSS FUL L15

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Uploading 09991261.str

L18      STRUCTURE UPLOADED

=> d
L18 HAS NO ANSWERS
L18              STR
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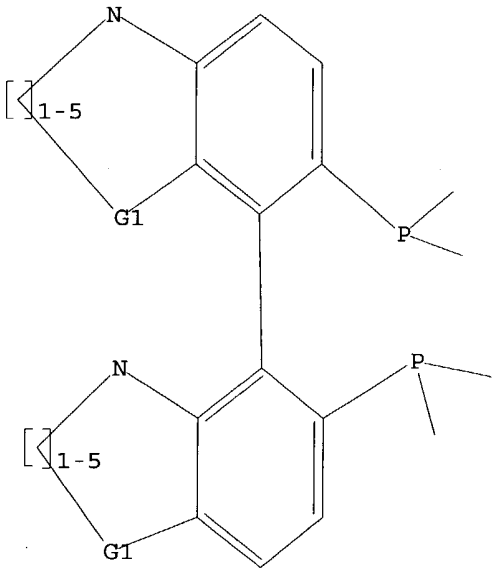

G1 O,N

Structure attributes must be viewed using STN Express query preparation.

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100.0% PROCESSED       0 ITERATIONS                                0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:            0 TO        0
PROJECTED ANSWERS:               0 TO        0

L19           0 SEA SSS SAM L18

=> s l18 full
FULL SEARCH INITIATED 16:18:10 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -      0 TO ITERATE

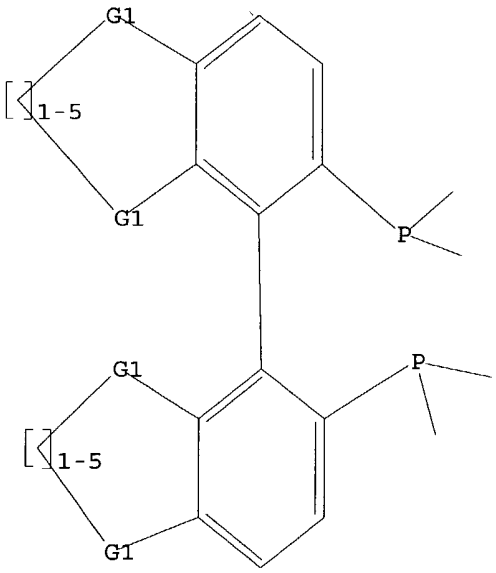
100.0% PROCESSED       0 ITERATIONS                                0 ANSWERS
SEARCH TIME: 00.00.01

L20           0 SEA SSS FUL L18

=>
Uploading 09991261.str

L21     STRUCTURE UPLOADED

=>  d
L21 HAS NO ANSWERS
L21             STR
```



G1 O,N

Structure attributes must be viewed using STN Express query preparation.

```
=> s l21
SAMPLE SEARCH INITIATED 16:19:27 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED -      2 TO ITERATE

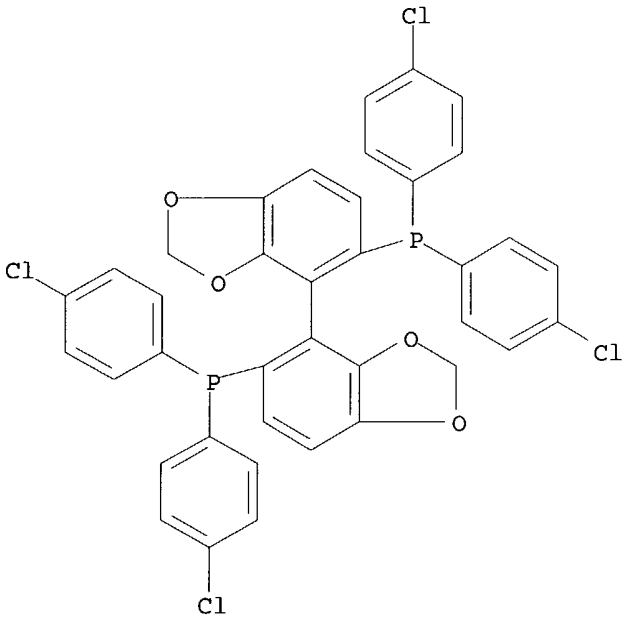
100.0% PROCESSED       2 ITERATIONS                                1 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:            2 TO      124
PROJECTED ANSWERS:               1 TO       80

L22           1 SEA SSS SAM L21

=> d scan

L22  1 ANSWERS   REGISTRY  COPYRIGHT 2003 ACS
IN   Phosphine, [4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[bis(4-chlorophenyl)-,
     (+)- (9CI)
MF   C38 H24 Cl4 O4 P2
```



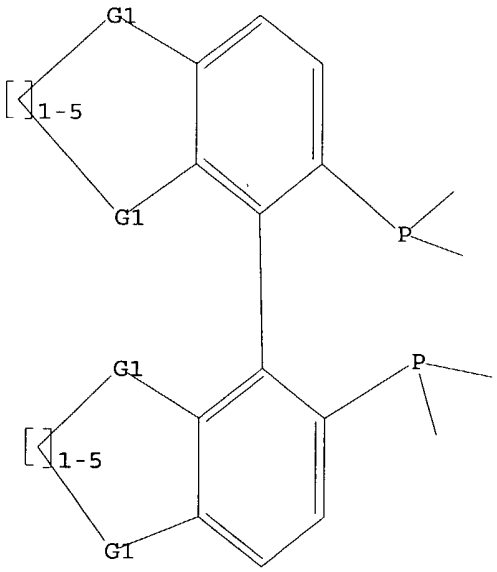
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

=>
Uploading 09991261.str

L23 STRUCTURE UPLOADED

=> d
L23 HAS NO ANSWERS
L23 STR



G1 O,N,S

Structure attributes must be viewed using STN Express query preparation.

=> s l23
SAMPLE SEARCH INITIATED 16:21:32 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 2 TO ITERATE

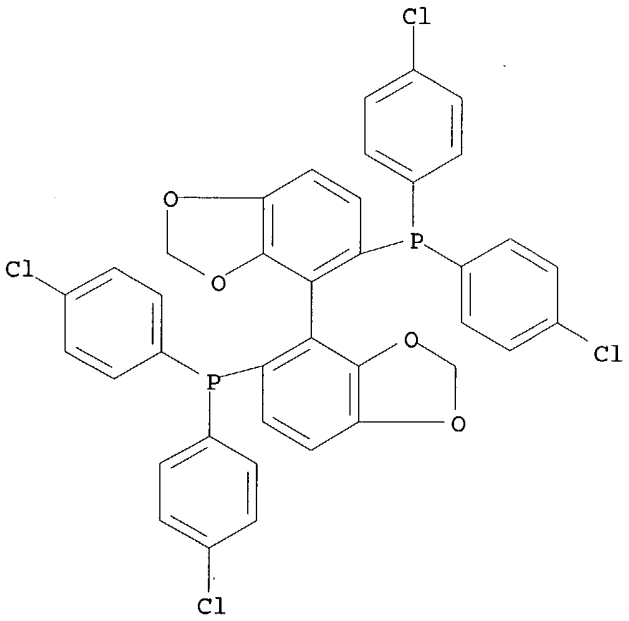
100.0% PROCESSED 2 ITERATIONS 1 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 2 TO 124
PROJECTED ANSWERS: 1 TO 80

L24 1 SEA SSS SAM L23

=> d

L24 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS
RN 210169-50-9 REGISTRY
CN Phosphine, [4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[bis(4-chlorophenyl)-, (+)- (9CI) (CA INDEX NAME)
MF C38 H24 Cl4 O4 P2
SR CA
LC STN Files: CA, CAPLUS, USPATFULL



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1962 TO DATE)
1 REFERENCES IN FILE CAPLUS (1962 TO DATE)

```
=> s l23 full
FULL SEARCH INITIATED 16:21:57 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -     56 TO ITERATE

100.0% PROCESSED      56 ITERATIONS                          21 ANSWERS
SEARCH TIME: 00.00.01

L25           21 SEA SSS FUL L23

=> s l25 and s/els
       5176232 S/ELS
L26           0 L25 AND S/ELS

=> s l25 and n/els
      14477626 N/ELS
L27           0 L25 AND N/ELS

=> file beilstein
COST IN U.S. DOLLARS                              SINCE FILE      TOTAL
                                                     ENTRY    SESSION
FULL ESTIMATED COST                                459.37     917.71

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)        SINCE FILE      TOTAL
                                                     ENTRY    SESSION
CA SUBSCRIBER PRICE                                  0.00     -10.42

FILE 'BEILSTEIN' ENTERED AT 16:23:42 ON 31 JAN 2003
COPYRIGHT (c) 2003 Beilstein-Institut zur Foerderung der Chemischen Wissenschaften
licensed to Beilstein Chemiedaten & Software GmbH and MDL Information Systems GmbH

FILE RELOADED ON OCTOBER 20, 2002

FILE COVERS 1779 TO 2001.
*** FILE CONTAINS 8,374,887 SUBSTANCES ***

>>> For the revised summary sheet please see:
    http://info.cas.org/ONLINE/DBSS/beilsteinss.html <<<

>>> PLEASE NOTE: Reaction and substance documents are stored in
    different file segments. Use separate queries to search for
    reaction and substance data. When searching for bibliographic
    information you have the option to chose the file segment.
    (Use "/XXX.SUB" to search for a bibliographic term in
    substance documents. To restrict the search to reaction
    documents use "/XXX.RX".)
    For additional information see HELP RXS. <<<

>>> FOR SEARCHING PREPARATIONS SEE HELP PRE  <<<

**********************************************************************
* PLEASE NOTE THAT THERE ARE NO FORMATS FREE OF COST.                 *
* SET NOTICE FEATURE: THE COST ESTIMATES CALCULATED FOR SET NOTICE    *
* ARE BASED ON THE HIGHEST PRICE CATEGORY. THEREFORE; THESE           *
* ESTIMATES MAY NOT REFLECT THE ACTUAL COSTS.                         *
* FOR PRICE INFORMATION SEE HELP COST                                 *
**********************************************************************

=> s l23 full
FULL SEARCH INITIATED 16:23:47 FILE 'BEILSTEIN'
FULL SCREEN SEARCH COMPLETED -      8 TO ITERATE

100.0% PROCESSED       8 ITERATIONS                           3 ANSWERS
SEARCH TIME: 00.00.04
```

```
L28            3 SEA SSS FUL L23

=> d ide

L28  ANSWER 1 OF 3 BEILSTEIN COPYRIGHT 2003 BEILSTEIN CDS MDL

      Beilstein Records (BRN):          8893429
      Chemical Name (CN):               DTBM-SEGPHOS
      Autonom Name (AUN):               5,5'-bis-<bis-(3,5-di-tert-butyl-4-methoxy-
                                        phenyl)-phosphanyl>-
                                        <4,4'>bi<benzo<1,3>dioxolyl>
      Molec. Formula (MF):              C74 H100 O8 P2
      Molecular Weight (MW):            1179.55
      Lawson Number (LN):               24014, 16730, 289
      Compound Type (CTYPE):            heterocyclic
      Constitution ID (CONSID):         7524026
      Tautomer ID (TAUTID):             8359415
      Entry Date (DED):                 2001/10/25
      Update Date (DUPD):               2001/10/25



* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY -  AVAILABLE VIA OFFLINE PRINT *

   Field Availability:

      Code      Name                                        Occurrence
      ==========================================================
      BRN       Beilstein Records                                  1
      CN        Chemical Name                                      1
      AUN       Autonomname                                        1
      MF        Molecular Formula                                  1
      FW        Formular Weight                                    1
      LN        Lawson Number                                      3
      CTYPE     Compound Type                                      1
      CONSID    Constitution ID                                    1
      TAUTID    Tautomer ID                                        1
      ED        Entry Date                                         1
      UPD       Update Date                                        1

   This substance also occurs in Reaction Documents:

      Code      Name                                        Occurrence
      ==========================================================
      RX        Reaction Documents                                 1
      RXPRO     Substance is Reaction Product                      1


=> d his

     (FILE 'HOME' ENTERED AT 15:40:00 ON 31 JAN 2003)

     FILE 'REGISTRY' ENTERED AT 15:40:06 ON 31 JAN 2003
L1              STRUCTURE UPLOADED
L2              STRUCTURE UPLOADED
L3            1 S L2
L4           21 S L2 FULL

     FILE 'CAPLUS' ENTERED AT 16:05:27 ON 31 JAN 2003
L5           10 S L4
```

```
     FILE 'BEILSTEIN' ENTERED AT 16:06:59 ON 31 JAN 2003
L6             0 S L4 FULL
L7             0 S L1 FULL
L8             3 S L2 FULL

     FILE 'REGISTRY' ENTERED AT 16:10:56 ON 31 JAN 2003
L9               STRUCTURE UPLOADED
L10            4 S L9
L11           56 S L9 FULL
L12           53 S L11 NOT SI/ELS
L13           50 S L12 NOT OL

     FILE 'CAPLUS' ENTERED AT 16:12:41 ON 31 JAN 2003
L14            6 S L13

     FILE 'REGISTRY' ENTERED AT 16:14:44 ON 31 JAN 2003
L15              STRUCTURE UPLOADED
L16            0 S L15
L17            0 S L15 FULL
L18              STRUCTURE UPLOADED
L19            0 S L18
L20            0 S L18 FULL
L21              STRUCTURE UPLOADED
L22            1 S L21
L23              STRUCTURE UPLOADED
L24            1 S L23
L25           21 S L23 FULL
L26            0 S L25 AND S/ELS
L27            0 S L25 AND N/ELS

     FILE 'BEILSTEIN' ENTERED AT 16:23:42 ON 31 JAN 2003
L28            3 S L23 FULL

=>

=>
Executing the logoff script...


=> LOG H

COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     8.55     926.26

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                       ENTRY    SESSION
CA SUBSCRIBER PRICE                                     0.00     -10.42

 SESSION WILL BE HELD FOR 60 MINUTES
STN INTERNATIONAL SESSION SUSPENDED AT 16:25:40 ON 31 JAN 2003


Welcome to STN International!  Enter x:x

LOGINID:ssspta1204jxv

PASSWORD:
TERMINAL (ENTER 1, 2, 3, OR ?):2


* * * * * * * * * *   Welcome to STN International   * * * * * * * * * *
```

```
NEWS  1           Web Page URLs for STN Seminar Schedule - N. America
NEWS  2  Apr 08   "Ask CAS" for self-help around the clock
NEWS  3  Apr 09   BEILSTEIN: Reload and Implementation of a New Subject Area
NEWS  4  Apr 09   ZDB will be removed from STN
NEWS  5  Apr 19   US Patent Applications available in IFICDB, IFIPAT, and IFIUDB
NEWS  6  Apr 22   Records from IP.com available in CAPLUS, HCAPLUS, and ZCAPLUS
NEWS  7  Apr 22   BIOSIS Gene Names now available in TOXCENTER
NEWS  8  Apr 22   Federal Research in Progress (FEDRIP) now available
NEWS  9  Jun 03   New e-mail delivery for search results now available
NEWS 10  Jun 10   MEDLINE Reload
NEWS 11  Jun 10   PCTFULL has been reloaded
NEWS 12  Jul 02   FOREGE no longer contains STANDARDS file segment
NEWS 13  Jul 22   USAN to be reloaded July 28, 2002;
                  saved answer sets no longer valid
NEWS 14  Jul 29   Enhanced polymer searching in REGISTRY
NEWS 15  Jul 30   NETFIRST to be removed from STN
NEWS 16  Aug 08   CANCERLIT reload
NEWS 17  Aug 08   PHARMAMarketLetter(PHARMAML) - new on STN
NEWS 18  Aug 08   NTIS has been reloaded and enhanced
NEWS 19  Aug 19   Aquatic Toxicity Information Retrieval (AQUIRE)
                  now available on STN
NEWS 20  Aug 19   IFIPAT, IFICDB, and IFIUDB have been reloaded
NEWS 21  Aug 19   The MEDLINE file segment of TOXCENTER has been reloaded
NEWS 22  Aug 26   Sequence searching in REGISTRY enhanced
NEWS 23  Sep 03   JAPIO has been reloaded and enhanced
NEWS 24  Sep 16   Experimental properties added to the REGISTRY file
NEWS 25  Sep 16   CA Section Thesaurus available in CAPLUS and CA
NEWS 26  Oct 01   CASREACT Enriched with Reactions from 1907 to 1985
NEWS 27  Oct 21   EVENTLINE has been reloaded
NEWS 28  Oct 24   BEILSTEIN adds new search fields
NEWS 29  Oct 24   Nutraceuticals International (NUTRACEUT) now available on STN
NEWS 30  Oct 25   MEDLINE SDI run of October 8, 2002
NEWS 31  Nov 18   DKILIT has been renamed APOLLIT
NEWS 32  Nov 25   More calculated properties added to REGISTRY
NEWS 33  Dec 02   TIBKAT will be removed from STN
NEWS 34  Dec 04   CSA files on STN
NEWS 35  Dec 17   PCTFULL now covers WP/PCT Applications from 1978 to date
NEWS 36  Dec 17   TOXCENTER enhanced with additional content
NEWS 37  Dec 17   Adis Clinical Trials Insight now available on STN
NEWS 38  Dec 30   ISMEC no longer available
NEWS 39  Jan 13   Indexing added to some pre-1967 records in CA/CAPLUS
NEWS 40  Jan 21   NUTRACEUT offering one free connect hour in February 2003
NEWS 41  Jan 21   PHARMAML offering one free connect hour in February 2003
NEWS 42  Jan 29   Simultaneous left and right truncation added to COMPENDEX,
                  ENERGY, INSPEC

NEWS EXPRESS  January 6 CURRENT WINDOWS VERSION IS V6.01a,
              CURRENT MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP),
              AND CURRENT DISCOVER FILE IS DATED 01 OCTOBER 2002
NEWS HOURS    STN Operating Hours Plus Help Desk Availability
NEWS INTER    General Internet Information
NEWS LOGIN    Welcome Banner and News Items
NEWS PHONE    Direct Dial and Telecommunication Network Access to STN
NEWS WWW      CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that
specific topic.

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  of commercial gateways or other similar uses is prohibited and may
  result in loss of user privileges and other penalties.
```

```
  * * * * * * * * * * * * * STN  Columbus  * * * * * * * * * * * * *


FILE 'HOME' ENTERED AT 18:26:20 ON 31 JAN 2003

=> file stnguide
COST IN U.S. DOLLARS                                    SINCE FILE      TOTAL
                                                           ENTRY    SESSION
FULL ESTIMATED COST                                         0.21       0.21

FILE 'STNGUIDE' ENTERED AT 18:26:26 ON 31 JAN 2003
USE IS SUBJECT TO THE TERMS OF YOUR CUSTOMER AGREEMENT
COPYRIGHT (C) 2003 AMERICAN CHEMICAL SOCIETY, JAPAN SCIENCE
AND TECHNOLOGY CORPORATION, AND FACHINFORMATIONSZENTRUM KARLSRUHE

FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Jan 24, 2003 (20030124/UP).

=> d his

     (FILE 'HOME' ENTERED AT 18:26:20 ON 31 JAN 2003)

     FILE 'STNGUIDE' ENTERED AT 18:26:26 ON 31 JAN 2003

=> file reg
COST IN U.S. DOLLARS                                    SINCE FILE      TOTAL
                                                           ENTRY    SESSION
FULL ESTIMATED COST                                         0.12       0.33

FILE 'REGISTRY' ENTERED AT 18:27:28 ON 31 JAN 2003
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:   30 JAN 2003  HIGHEST RN 483965-49-7
DICTIONARY FILE UPDATES:  30 JAN 2003  HIGHEST RN 483965-49-7

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

Crossover limits have been increased.  See HELP CROSSOVER for details.

Experimental and calculated property data are now available.  See HELP
PROPERTIES for more information.  See STNote 27, Searching Properties
in the CAS Registry File, for complete details:
http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf

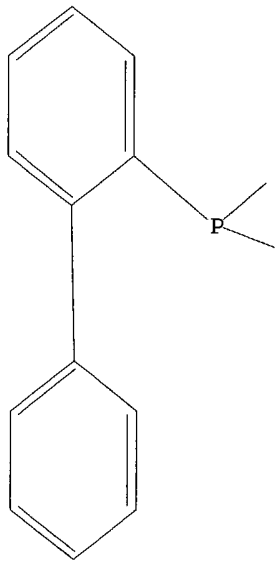
=>
Uploading 09991261.str

L1      STRUCTURE UPLOADED

=> s
ENTER LOGIC EXPRESSION, QUERY NAME, OR (END):end
SEARCH ENDED BY USER

=> d
```

L1 HAS NO ANSWERS
L1 STR



G1 O,N,S

Structure attributes must be viewed using STN Express query preparation.

=> s l1
SAMPLE SEARCH INITIATED 18:27:54 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 166 TO ITERATE

100.0% PROCESSED 166 ITERATIONS 31 ANSWERS
SEARCH TIME: 00.00.02

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 2547 TO 4093
PROJECTED ANSWERS: 286 TO 954

L2 31 SEA SSS SAM L1

=> d scan

L2 31 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphine, (1,1-dimethylethyl)phenyl[2'-[(trimethylsilyl)oxy][1,1'-biphenyl]-2-yl]- (9CI)
MF C25 H31 O P Si